LIST OF THE MOSQUITOES OF QUEENSLAND

WITH THE ORIGINAL DESCRIPTIONS AND NOTES ON THE LIFE-HISTORY OF A NUMBER.

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The Culicidæ have been studied of recent years by Fred. V. Theobald, M.A., and others, and a monograph of them published by the British Museum.

In the monograph the characters of the family Culicidæ are given, as follows:—

Head small and more or less rounded, the occiput covered with scales; eyes reniform; ocelli absent; mouth in the form of a proboscis, which is formed of the following parts:—(1) a long pointed upper lip or labrum, united with an accessory piece, the epipharynx; (2) a long gutter-shaped lower lip or labium, ending in two jointed spatulate labella, which appear fo be the labial palps; (3) two narrow needle-like mandibles; (4) two thin maxillæ, ending in serrated or barbed edges; and (5) a single piece of extreme thinness, the so-called hypopharynx; the whole being enclosed by the upper and lower lips. The palpi may be long or short, and vary in the number of joints; in Culex they are short in the ♀, long in the ♂; in Anopheles long in both sexes; in Ædes short in both sexes, etc.; the number of joints varies from two in Ædes to four in Anopheles, and five in Megarhinus. In Anopheles the ♀ plalpi are four-jointed, the ♂ three-jointed, but there exists in the base a small constriction, which make the ♀ appear five-jointed; in the ♂, constrictions also appear and make the palpi look six-jointed, but I (Theobald) prefer to look upon the ♀ palpi as four-jointed, and the ♂ as three-jointed, the basal joint being very much elongated, whilst in Megarhinus they are five-jointed in both sexes. In the ♀ Culex they vary from three to four (sometimes, owing to the constriction, five), in the ♂ three-jointed (five or six-jointed if we take the constrictions as representing articulations). The antennæ are plumose in the ♂, pilose in the ♀, fourteen-jointed in the ♀, fifteen-jointed in the ♂; the basal joint is globose, and may be nude or scaly; the second joint may be swollen, elongated, or normal, and is usually more or less scaly; in the ♂ the last two joints are long and thin except in Ædeomyia.

The thorax is chiefly composed of the mid-division, the mesothorax, which is large and convex; the prothorax is reduced to a pair of lobes—the prothoracic lobes—on each side of the mesothorax, between the head and the mesothorax.

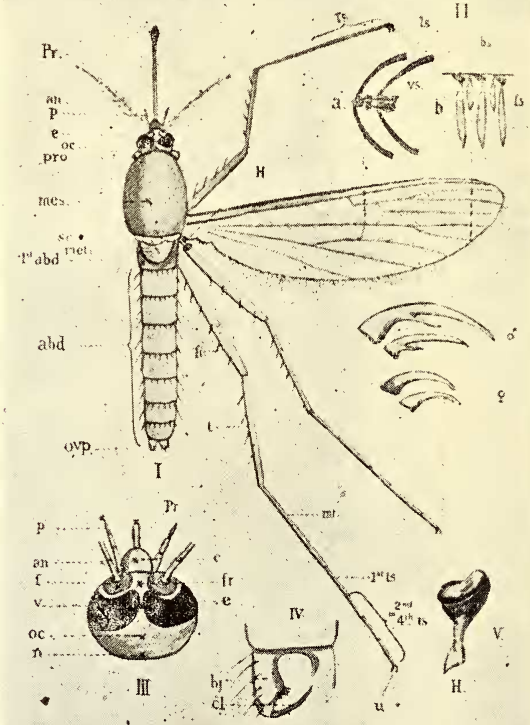

Fig. 7.
Anatomy of a typical *Culex*.

I. Pr., proboscis; an., antennae; p., palpi; e., eyes; oc., occiput; pro., prothoracic lobes; mes., mesothorax; sc., scutellum; met., metathorax; 1st abd., first abdominal segment; abd., abdomen; ovp., basal lobes of ♀; H., haltere; fe., femur; t., tibia; mt., metatarsus; 1st ts., first tarsal; Ts., tarsi; u., ungues. II. Wing scales; a., of veins; b., of fringe; vs., median scales; ls., lateral scales; bs., border scales; fs., fringe scales. III. Enlarged head of ♀: Pr., proboscis; p., palpi; an., antennae; f., basal lobe of antenna; fr., frons; oc., occiput; c., clypeus; e., eyes; n., nape; v., vertex. IV. Male genitalia; bj., basal lobe; cl., clasper. V. Haltere (H).

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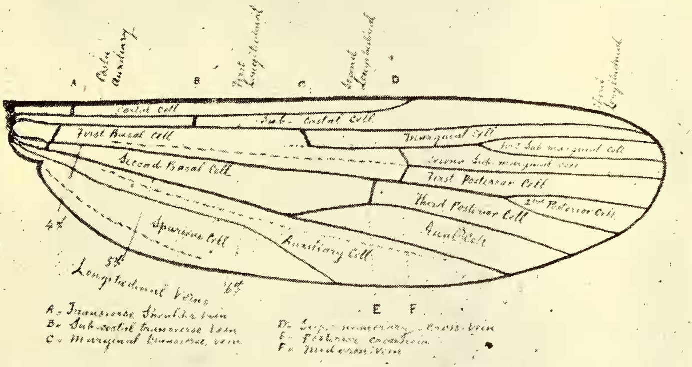
The scutellum is very distinct, and may be composed of a median and lateral lobes, with a posterior border of bristles, or of a single lobe. The metanotum is well developed in all save Megarhinus and Toxorhynchites, where it is more or less hidden under the scutellum; it bears neither scales nor bristles, except in Wyeomyia and Trichoprosopon. The thoracic scales vary in the different groups; they are present on all parts save the metathorax (except Trichoprosopon), and may be neither flat, narrow, and curved or spindle-shaped The abdomen joins the thorax closely, the first segment generally being more or less nude, but showing one or two patches of scales and numerous long hairs; the segments number nine, and may (Culex, Megarhinus) or may not (some Anopheles) be covered with broad or other scales, more or less hairy, especially in the ♂; male genitalia consists of a pair of large basal joints covered with scales and a thin nude terminal joint or clasper to each, which may be two-jointed; in the female the two anal lobes end in round, bristly, or scaly spatulate extremities. Wings with the veins covered and edged with scales of various forms, the membranous surfaces sometimes being hairy; the scales may be spread uniformly (Culex pipiens, etc.) or in groups, thus giving a spotted appearance to the wings (C. annulatus), etc.) or the wings may be coloured on the membrane (Mucidus mucidus, etc.)



There is always a border-fringe of scales, which vary in form and arrangement; the costa is usually dark, and may be spotted (Anopheles); the auxiliary or sub-costal vein joins the costa considerably before the apex of the wing, the first longitudinal near the apex; the second and fourth longitudinals are both forked, the forks forming the first sub-marginal and second posterior cells respectively; these cells may be either long and thin (Culex, etc.), or very short (Megarhinus); the third longitudinal vein is simple, and is united to the second and fourth by the supernumerary and mid-cross veins respectively; the fifth long vein gives off an anterior branch at about half its length, forming a large anal cell, the anterior branch being united to the fourth long vein by the posterior cross-vein; the sixth long vein is simple and sinuous; the second and third long veins may be prolonged into the first basal cell, which is usually large, but smaller in Megarhinus; the sub-costal transverse is always present, but not always readily seen, whilst the second long vein is united to the first by the marginal transverse; there are one (Culex) or two (Megarhinus) indistinct incrassations of the wing membrane representing branches of the fourth trunk, which never reach the margin of the wing, and are never provided with scales; in the ♂'s the fork cells are usually much smaller than in the ♀'s (especially in Culex and Anopheles); the wings are recumbent in repose, and may or may not be longer than the abdomen.

The legs are long, but not so long as in the Tipulidæ, the hind metatarsus being usually long; the ungues are nearly always equal and small in the ♀, and may or may not be toothed; in the ♂ the fore and mid-ungues are unequal and are toothed in various ways, but have rarely more than two serrations; the hind ones are always equal; the legs are scaly, except the coxæ and trochanters, which are usually nude, but with occasional patches of squamæ. The chief characters by which the Culicidæ are distinguished are:—

(1) The piercing mouth;

(2) The scaled veins, head, thorax, body, etc.

(3) The venation composed of six distinct longitudinal veins (in Heptaphlebomyinæ seven), and two prominent fork-cells, with their covering of scales, the costal vein being carried right round the edge of the wing.

The family is divided by Theobald into ten sub-families, characterised as follows:—

SUB-FAMILY 1.—ANOPHELINÆ.

In this sub-family the scutellum is simple, never trilobed; the palpi are long in the ♂ and ♀, and the larvæ have no respiratory siphon. The head never has flat lateral scales.

The genera may easily be told by the squamose characters of head, thorax, abdomen and wings. It contains the following genera:—Anopheles, Myzomyia, Cycloleppteron, Feltinella, Stethomyia, Pyretophorus, Myzorhynchella, Arribalzagia, Myzorhynchus, Chrystia, Lophoscelomyia, Nyssorhynchus, Cellia, Neocellia, Aldrichia, Kerteszia, Bironella, Chagasia, Pseudomyzomyia.

SUB-FAMILY 2.—MEGARHININÆ.

In this sub-family the proboscis is strongly re-curved; head and scutellum densely clothed with flat scales. The palpi of the ♀ may be short or long. The first sub-marginal cell is very small. It contains the genera Megarhinus, Ankylorhynchus, Toxorhynchites.

SUB-FAMILY 3.—CULICINÆ.

Proboscis straight; metanotum nude; palpi long in the ♂, short in ♀. Antennæ of ♂ plumose; second segment normal. First sub-marginal cell as long or longer than the second posterior cell. Wings with six-scaled longitudinal veins.

It contains the genera Janthinosoma, Psorophora, Mucidus, Eretmapodites, Quasistegomyia, Desvoidea, Stegomyia, Pseudoskusea, Ludlowia, Scutomyia, Ædimorphus, Leicesteria, Macleaya, Carrollia, Popea, Howardina, Hulecœteomyia, Phagomyia, Polyleptiomyia, Neomacleaya, Pseudohowardina, Lepidotomyia, Protomacleaya, Reedomyia, Pecomyia, Catageiomyia, Gilesia, Trichorhynchus, Pseudotheobaldia, Maillotia, Theobaldia, Pardomyia, Megaculex, Grabhamia, Pseudograbhamia, Acartomyia, Lutzia, Culicada, Culicelsa, Culiseta, Culex, Microculex, Protoculex, Lophoceraomyia, Aporoculex, Leucomyia, Trichopronomyia, Tæniorhynchus, Chryscoonops, Mansonia, Mansonioides, Etorleptiomyia, Melanoconion, Neomelanoconion, Lasioconops, Finlaya, Oculeomyia, Rachionotomyia, Lepidoplatys, Gymnometopa, Orthopodomyia, Bancroftia, Pneumaculex, Danielsia, Culiciomyia, Banksinella.

SUB-FAMILY 4.—ÆDINÆ.

Proboscis straight; metanotum nude; palpi short in the ♂ and ♀. Antennæ of ♂ plumose, ♀ pilose. Wings with six longitudinal scaled veins. First sub-marginal cell as long or longer than the second posterior cell.

It contains the genera Ædes, Skusea, Loptosomatomyia, Hæmagogus, Cacomyia, Gualteria, Ædeomyia.

SUB-FAMILY 5.—URANOTÆNINÆ.

First sub-marginal cell very small, always smaller than the second posterior cell. Proboscis straight, swollen apically. Palpi short in ♂ and ♀. Antennæ plumose in ♂, pilose in ♀. Second segment of antennæ normal.

It contains the genera Uranotænia, Pseudouranotænia, Anisocheleomyia, Mimomyia.

SUB-FAMILY 6.—DEINOCERATINÆ.

Proboscis straight; metanotum nude. First sub-marginal cell longer than the second posterior. Antennæ pilose in ♂ and ♀. Palpi short in ♂ and ♀. Second segment of antennæ very long. Wings with six longtiudinal scaled veins.

It contains the genus Deinocerites.

SUB-FAMILY 7.—HEPTAPHLEBOMYINÆ.

Probsocis straight; metanotum nude. First sub-marginal cell long. Antennæ pilose in ♀, plumose in ♂. Wings with seven longitudinal scaled veins. Palpi short in ♀, long in ♂.

It contains the genera Heptaphlebomyia, Pseudoheptaphlebmyia.

SUB-FAMILY 8.—TRICHOPROSOPONINÆ.

Proboscis straight; metanotum with squamæ or chætæ. Palpi long in ♂, short in ♀. First sub-marginal cell longer than the second posterior cell.

It contains the genera Runchomyia, Hyloconops, Trichoprosopon, Joblotia.

SUB-FAMILY 9.—DENDROMYINÆ.

Proboscis straight; metanotum with chætæ or squamæ. Palpi short in both sexes. First sub-marginal cell longer than the second posterior cell.

It contains the genera Wyeomyia, Phoniomyia, Dendromyia, Philodendromyia, Polylepidomyia, Sabethes, Sabethoides, Sabethinus.

SUB-FAMILY 10—LIMATINÆ.

Proboscis elbowed. Metanotum squamose. Palpi short in ♂ and ♀. First sub-marginal cell longer than the second posterior cell.

It contains the genus Limatus

TABLE OF SUB-FAMILIES.

A. Scutellum simple, never trilobed ; proboscis straight ; palpi long in both sexes. *Anophelinæ.*

AA. Scutellum trilobed.

a. Proboscis strongly recurved ; first sub-marginal cell very small. *Megarhininæ.*

aa. Proboscis straight ; metanotum nude.

b. Wings with six long veins.

c. Antennæ with second joint normal in length.

d. First sub-marginal cell as long or longer than the second posterior cell.

e. Palpi of female shorter than the proboscis ; palpi of male long. *Culicinæ.*

ee. Palpi short in both sexes. *Ædinæ.*

dd. First sub-marginal cell very small, smaller than the second posterior cell. *Uranotæninæ.*

cc. Antennæ with second joint very long. *Deinoceratinæ.*

bb. Wings with seven long veins *Heptaphlebomyinæ.*

aaa. Proboscis straight ; metanotum with scales or chætæ.

f. Palpi long in male, short in female. *Trichoprosoponinæ.*

ff. Palpi short in both sexes. *Dendromyinæ.*

aaaa. Proboscis elbowed. *Limatinæ.*

Mosquitoes are classified by the microscopical character of their scales, particularly those of the occiput and wing. In order to examine a mosquito effectively under the microscope, it should be mounted in a particular way, and the following method introduced by the writer, is recommended. Mosquitoes are captured alive in the glass-bottomed boxes used by entomologists and brought home alive ; after having been killed in the cyanide bottle, they are emptied out on to what the writer has termed "the paper drum" (this is a hollow cylinder of cardboard or any other material, about two inches in diameter, and a couple in length, over one end of which is stretched a piece of writing paper, and tied on). The pins used for rare specimens and all intended for types are silver pins ; there are several thicknesses of these, and it is well to have a few of each ; when using silver pins it is necessary to employ polyporus strips; for ordinary work, however, No. 20 gilt pins and strips of cork, one-eighth inch square, and half-an-inch long, are used ; the pin is held with a pair of entomologist's forceps, and passed through the polyporus or cork strip one-sixteenth of an inch from the end until the middle of the pin is in the cork ; the cork being held by the finger and thumb, the pin is passed through the mosquitoe's thorax, and pushed on through the paper drum until the insect almost touches the cork ; a large pin is then stuck into the other end of the cork, one-eighth inch from the end, and pressed on until the cork is midway up, a No. 5 black steel pin or a No. 3 white (Kirby, Beard and Co.,) is recommended for this purpose ; the specimen is afterwards handled by the larger pin only.

When examining a mosquito mounted in this way, the large pin is stuck into the side of a cork, one inch in diameter, and three-quarters long, half a wine cork answers the purpose ; by shifting the cork about on the stage of the microscope, and by varying the angle at which the specimen is pinned, the mosquito can be brought into any position for examination by low powers ; a magnification of about fifty diameters will generally suffice. It is well to remember that the scales of mosquitoes are easily rubbed off ; the specimen after having been killed in the cyanide bottle, should be pinned immediately ; pin through the thorax in the most convenient way ; do not roll the specimen over, and never set out the wings or legs, for every touch, even with a fine pin, removes more or less of the scales.

Professor E. P Felt has recently split up the genus Culex into a number of new genera on the character of the male genitalia and venation. He proposes to divide the old genus into Culex, Culicelsa, Culicada, Ecculex, Culicella, Culiseta and Protoculex. It seems a pity that dipterists do not give Theobald a free hand *to* arrange the Culicidæ, as he is in a better position than anyone else to do this most difficult work ; to adopt any other than his classification now would cause endless confusion.

In critically examining the venation, *e.g.*, the position and relative size of the cross-veins, the wing should be mounted in a drop of olive or castor oil, on a slide with a cover glass ; all the cross-veins are then seen to advantage ; with an eye piece micrometer their size can be determined.

TABLE OF SPECIES.

SUB-FAMILY ANOPHELINÆ.

Anopheles corethroides.—*Theobald.*
Pyretophorus atratipes.—*Skuse.*
Myzorhynchus bancroftii.—*Giles.*
Nyssorhynchus annulipes.—*Walker*.....“ Spear Mosquito.”

SUB-FAMILY MEGARHININÆ.

Toxorhynchites speciosus.—*Skuse.*

SUB-FAMILY CULICINÆ.

Mucidus alternans—*Westwood*............“ Scotch Grey.”
Stegomyia fasciata.—*Fabricius*..........“ Tiger Mosquito.”
Stegomyia punctolateralis.—*Theobald.*
Pseudoskusea multiplex.—*Theobald.*
Scutomyia notoscripta.—*Skuse.*
Macleaya tremula.—*Theobald.*
Gilesia aculeata.—*Theobald.*
Grabhamia flavifrons.—*Skuse.*
Culex fatigans.—*Wiedemann*..........“ House Mosquito.”
Culex vittiger.—*Skuse.*
Culex alboannulatus.—*Macquart.*
Culex rubithorax.—*Macquart.*
Culex tigripes.—*Grandpré* ....“ Long-lived Mosquito.”
Culex occidentalis.—*Skuse.*
Culex vigilax.—*Skuse*............“ Black Bush-Mosquito.”
Culex annulirostris.—*Skuse.*
Culex pseudomelanoconia.—*Theobald.*
Culex burpengaryensis.—*Theobald.*
Culex procax.—*Skuse.*
Culex cylindricus.—*Theobald.*
Culex linealis.—*Skuse.*
Tæniorhynchus acer.—*Walker* ....“ Golden Mosquito.”
Mansonia uniformis.—*Theobald.*
Finlaya poicilia.—*Theobald.*

SUB-FAMILY ÆDINÆ.

Skusea funerea.—*Theobald.*

SUB-FAMILY URANOTÆNINÆ.

Uranotænia pygmæa.—*Theobald.*
Anisocheleomyia nivipes.—*Theobald.*

ANOPHELES.—Meigen (1818).

Thorax and abdomen clothed with hair-like curved scales, practically hairs ; the palpi of the female thin, not densely scaled, generally unbanded. Wing veins covered with long lanceolate scales, which may or may not form spots, but which, if present, are never so numerous as in other genera. They are mostly large species, and either belong to temperate climates, or are hill species when occurring in tropical climates.

Anopheles corethroides.—*Theobald* (1907).

♀. Head brown, with grey sheen, and with narrow upright paler brown to dull ochreous, forked scales ; clypeus large, deep brown, with grey sheen ; antennæ deep brown with pale pubescence along the internodes ; proboscis deep brown ; palpi deep brown, not quite as long as the proboscis, apical segment much shorter than the long penultimate segment. Thorax pale greyish-brown with a broad dark brown median area extending from the head to about half the length of the mesonotum, broadest in front, and with a median line, and ending in two separate rounded outlines ; just overlapping and passing back to the scutellum, on each side is a pale brown line ; hairs brown, a median line somewhat paler ; scutellum pale ochreous grey with brown border-bristles ; metanotum deep brown ; pleuræ brown. Abdomen deep brown, paler areas on the last few segments, bristles brown and pale brown. Legs brown with bronzy reflections, paler beneath, ungues equal and simple. Wings with rather short fork-cells, the first sub-marginal longer and narrower than the second posterior contracted apically ; its base nearer the base of the wing, its stem about two-thirds the length of the cell ; stem of the second posterior as long as the cell ; mid cross-vein about its own length in front of the supernumerary and posterior cross-veins. Halteres with dark knobs. Length, 3 to 4 mm.

♂. Palpi deep brown swollen apically with scanty hairs, slightly longer than the proboscis ; fore ungues unequal, the larger uniserrate ; mid and hind equal and simple.

First sub-marginal cell longer and narrower than the second posterior cell, its stem as long as the cell, stem of the second posterior longer than the cell ; mid cross-vein rather more than its own length in front of the supernumerary and posterior. Length, 3 mm.

This is a small mosquito, and extremely uncommon ; I bred it out from a mixed lot of larvæ obtained from a small well or water hole, four feet square, made in a gully in the Burpengary scrub, near the railway station ; this hole was dug out with a spade until water soaked naturally into it ; several rare mosquitoes were obtained from this waterhole. After some months, predacious insects such as Dragon-fly larvæ, Notonecta, Belostoma, etc., make their appearance in such a mosquito well, and if one wishes to encourage mosquitoes to breed in it, it is necessary to clean it out occasionally.

I have also bred it out from mixed larvæ obtained from the Kedron Brook, in the vicinity of Alderley.

Mosquitoes have a hard existence in permanent water courses, as these are stocked with small fish, and a large variety of insects; their safest position is at the extreme edge, where the water is an inch or less deep.

The eggs and larvæ have yet to be observed, and whether the mosquito bites; hitherto only a few specimens have been obtained, and all have been pinned for identification.

PYRETOPHORUS.—Blanchard (1902).

Thorax with narrow-curved scales, often rather elongated; abdomen with hair-like curved scales, practically hairs, the ♀ lamellæ only with scales; wings with small, short, lanceolate or narrowish scales, much spotted as a rule; palpi of the ♀ moderately scaled; legs banded, sometimes spotted. No flat scales on the head.

Pyretophorus atratipes.—*Skuse* (1888).

♀. Antennæ about three-fourths the length of the palpi; dark brown almost fuliginous, with hoary pubescence and verticils; first joint of the scapus black. Head fuliginous, adorned with white scales, intermixed with some black hairs, and a tuft of long white parallel hairs stretching out from the vertex over the bases of the antennæ. Proboscis and palpi densely and uniformly clothed with deep violet-black scales, the terminal joint of the latter very slightly tipped with white. Thorax primrose-brown, with a small roundish black spot laterally about the middle of its length, and another immediately in front of the scutellum, traversed by three long, parallel double rows of moderately long black hairs intermixed with short slender shining white scales; lateral margins slightly testaceous with a few scattered white scales and some short white hairs above and in front of the origin of the wings; pleuræ dark brown, somewhat marbled with testaceous; scutellum testaceous, with a dark roundish spot on the apex, fringed with long black hairs, metanotum brown, halteres black, or very deep brown, the stem ochre-yellow. Abdomen about twice length of thorax, black, levigate, sparsely clothed with golden-yellow hairs (terminal joint more densely); lamellæ of ovipositor black, fringed with short golden-yellow hairs. Coxæ ochreous. Legs clothed with violet-black scales, femora and tibæ bright ochreous beneath and very slightly at the tips. Coxæ pale ochreous without scales, slightly hairy. Wings length of the entire body, bright ochre-yellow at base, hyaline, veins very densely covered with scales, those on the costa, auxiliary and first longitudinal veins black, the remaining veins with black and yellow scales arranged in alternate series, almost entirely black on the sixth long vein. Six patches of black scales are prominent, situated at the following points; on the fifth long vein, midway between its origin and the base of its fork, at the base of the fork, at the bases of the second and third long veins, the cilia on the costa between a point immedately above the tip of the first long vein and immediately below the tip of the third long vein pale yellowish or whitish, the remaining cilia violet-black with a light sericeous reflection. Auxiliary vein reaching the costa opposite the middle cross-vein, second long vein beginning some distance before the marginal cross-vein; supernumerary and middle cross-vein opposite one another, situated beyond the posterior cross-vein a distance not equal to the length of the latter; posterior cross-vein situated opposite the beginning of the third long vein and considerably beyond the tip of the sixth long vein; first sub-marginal cell longer but not narrower than the second posterior cell, its base situated a little before that of the latter; base of the anal cell lying a little before origin of second long vein.

Length of antennæ,	1.77 mm.
Wing expanse,	4.18 × 0.84 mm.
Body,	4.18 × 0.76 mm.

Habitat, Berowra (N.S.W.) (*Skuse*); South Queensland (*Bancroft*.)

Theobald adds these details after examination of the specimens from Queensland: Clypeus trilobed. The densely scaled palpi are scarcely white at the apex, and the scutellum has rather long pale scales on the posterior border and fifteen border-bristles rather far apart.

The authorities in Sydney, who have charge of Skuse's collection of mosquitoes and his types, fearing lest the insects might be damaged in transit, refused to forward the same to the British Museum; Mr. Theobald had to work out the Australian mosquitoes without the assistance of this excellent collection.

This mosquito is rather uncommon, only two or three specimens can be obtained occasionally in scrubs and swamps in South Queensland, from Caboolture to Moreton Bay and Enoggera. It is a vicious biter, causing considerable pain; it may be told at a glance from Nyssorhynchus annulipes, the common Spear mosquito, by the unbanded legs and black palpi. It will live in confinement and oviposit; eggs laid singly; the larvæ are delicate and hitherto I have not succeeded in rearing any to maturity. Males not known

MYZORHYNCHUS —BLANCHARD (1902).

Thorax with hair-like scales; prothoracic lobes with ragged scales; the abdomen with ventral and a few apical scales, and a ventral apical tuft; there are no lateral scale tufts to the segments; wing scales broadly lanceolate or moderately lanceolate, sometimes short and broad; palpi densely scaled in the ♀ and also the proboscis. Wild species breeding in swampy ground. Larvæ with much branched frontal hairs. Mostly large and dark species.

MYZORHYNCHUS BANCROFTII.—*Giles* (1902).

♀. Head black, with dark narrow curved and forked upright scales; antennæ, palpi, and proboscis deep black, the two latter densely scaled; thorax black, with rather dense, long, golden brown hairs; pleuræ mottled, with black and pale brown. Abdomen black, with golden brown hairs; venter black. Wings deep black, with a small white interruption of the costa opposite the middle of the fork-stems and a slightly larger patch of white at the apex; veins dusky and white scaled, the former predominating; two prominent white areas on the sixth long vein, on the other veins are here and there scattered white scales, but never enough to form a well marked pale area; fringe with pale areas where the veins join the costa, except at the end of the sixth. Legs black, the tarsi with very small apical pale bands. Length, 7 mm.

I found this large black mosquito in scrubs from Caboolture to Enoggera, biting fiercely; it is never plentiful; it can be told immediately it settles on you from its dark colour and dark black shaggy palpi; I allowed several to bite me before boxing them, and kept them in confinement in hope that they would oviposit; they, however, died in a day or two.

The eggs and larvæ and males have never been seen.

NYSSORHYNCHUS.—BLANCHARD (1902).

Thorax with narrow-curved and spindle-shaped scales. Abdomen with ventral scales and also scales on the apical segment and sometimes dorsal apical patches. Wing scales bluntly lanceolate, short, some more elongate and narrow; palpi densely scaled. Legs banded and spotted with white, the hind tarsi usually with one or more pure white joints.

The larvæ are mostly pot and puddle-breeding species, but some breed in marshes; the adults mostly domestic, but some are wild.

The scales on the abdomen vary; some are small and spatulate, others long and thin; some have a fair number of abdominal scales, others only on the apical segment; they are never as prominently scaled as Cellia, nor are the wing scales similar.

NYSSORHYNCHUS ANNULIPES.—*Walker* (1850).

♂. Head black, with white scales in front and dusky scales behind; eyes dark; antannæ dark brown, with band of white scales and pale hairs; palpi slender and long, with white and brown bands; proboscis slender, covered with small dark scales slightly longer than the palpi. Thorax dark brown, almost black when denuded, with slaty reflections, indistinctly striped and with pale scales dotted over it; scutellum paler towards the edge; metanotum deep shiny black; pleuræ blackish. Abdomen dark brown, paler towards the edge, with yellow scales scattered over it, particularly at the pale edges, black ventrally. Femora and tibiæ with numerous bands of black and yellowish-white scales, tarsi with pale bands both apical and basal. Wings with four black spots along the costa and with numerous small patches of dark scales on the veins. Halteres testaceous at the base, with a pale stem and dark knob. Length, 5 mm.

♀. Head black, with white scales on the vertex, black scales at the sides; two long tufts of white hairs projecting in front; antennæ brown, with white pubescence; basal joints testaceous, first two joints with white scales. Proboscis brown; palpi with the last three joints with a broad white apical ring, the first and second joints with white patches of scales above. Thorax brown, with slaty-grey reflections, and with scattered white and creamy scales; scutellum yellowish at the sides, fuscous in the middle. Metanotum dusky. Abdomen fuscous, with dull yellow scales. Legs as in the ♂. In the wings the first sub-marginal cell is considerably longer and narrower than the second posterior cell, its base nearer the base of the wing than that of the latter; the posterior cross-vein more than its length from the mid cross-vein.

Length, 5 to 6 mm.

Habitat, N. S. Wales (*Skuse* and *Masters*); S. Queensland (*Bancroft*).

Theobald describes the larvæ as follows:—There are two curved median frontal hairs; then two long simple ones; and two lateral tufted ones, and the antennæ are serrated along one side, the apex with two spines and two median hairs.

This is the common Anopheline or Spear-Mosquito, plentiful all the year round in Southern Queensland in forest as well as scrub country, and even coming into the houses. It will bite at any time, and possibly is the mosquito associated with malarial fever, in Southern Queensland, at any rate. The eggs are laid singly, and the larvæ float horizontally on the surface of the water; they live in salt water as well as in running fresh and stagnant waters; but they are to be found about habitations in small collections of water, also, but not commonly. The larvæ present many different appearances, some being quite black, whilst others are brown with white spots.

This mosquito will live in confinement for about a month if fed on dates, and will oviposit whilst caged.

The mosquitoes hatched from larvæ, that have been starved, are very small in size, and it is a question whether these are not what Skuse, and after him, Theobald, regarded as Nyssorhynchus masteri. Theobald, in his description of Nyssorhynchus masteri, *Skuse*, from small specimens from Queensland, makes these observations: "Very like and closely related to N. annulipes, but the female can easily be told by the proboscis being paler at the tip. It is also smaller in size, and Skuse says that the subcostal transverse vein is placed considerably beyond the middle of the auxiliary vein, whilst in N. annulipes it is situated in the middle."

These characters, however, I find will not hold with the Queensland specimens.

TOXORHYNCHITES.—Theobald (1901).

Head clothed with flat scales; thorax with small, flat, spindle-shaped scales; abdomen with flat scales. Palpi short in the ♀ three-jointed, the last joint long and rounded at the end, slightly curved at the apex; long in the ♂ five-jointed; proboscis long and curved, as in Megarhinus; wing venation much as in Megarhinus, the supernumerary cross-vein nearer the apex of the wing than than the mid cross-vein; ungues of ♀ equal and simple. Abdomen with a caudal tuft. In Megarhinus the palpi are long in both sexes

Toxorhynchites speciosus.—*Skuse* (1888).

♂. Antennæ brown, a little more than half the length of the palpi; basal joint black, with hoary reflections; second joint more than twice the length of the third, ornamented with some beautifully iridescent scales, the whorl of very long hairs situated about one-third from the apex. Head covered with brilliant margaritaceous scales, chiefly reflecting green; in a certain light appearing brown with a bright pale greenish line round the hinder border of the eyes. Proboscis (0.300in.) somewhat longer than the palpi (0.285in.), deep metallic blue, with a purplish reflection before the bend, brown beyond. Palpi deep metallic blue, with purplish reflections, the third joint ringed with golden-yellow at the apex (this is much more distinct underneath), and the fourth joint with a broader ring of the same beyond the middle. Thorax brown, the lateral margins and prothorax densely covered with pale greenish scales, the latter with long brown hairs; hinder margin and scutellum richly adorned with brilliantly iridescent scales and long brown hairs; pleuræ with a naked brown stripe from the origin of the wings to the scale-like prothoracic projection, below this densely covered with silvery scales; metanotum brown, naked. Halteres ochre-yellow. Abdomen about twice the length of, but narrower than the thorax, flat, deep metallic blue, except the first segment, the latter green with a yellow patch on each side; fifth segment showing some golden-yellow laterally, sixth and eighth segments ornamented with a strong tuft of golden hair laterally, the seventh with black tufts; all the segments slightly bordered with golden hairs laterally; the first to third and fifth to seventh segments golden-yellow beneath with a metallic blue longitudinal stripe down the centre, fourth entirely metallic blue, and the terminal one brilliant pale green. Coxæ clothed with silvery scales. Femora and tibiæ metallic voilet, the former golden-yellow beneath. In the intermediate and fore legs the first joint of the tarsi white except at the base, and the second also except at the apex; the rest metallic violet. Wings longer than the abdomen, with a pale brownish tint anteriorly and along the fifth longitudinal vein, veins pale brown, cilia pale and short, weak reflections. Auxiliary vein joining the costa almost opposite but somewhat beyond the posterior branch of the fifth longitudinal; sub-costal cross-vein distinct, situated about mid-way between the origin of the anterior branch of the fifth longitudinal vein and the origin of the second longitudinal; fork of the latter very small, the tips of the branches slightly bent anteriorly; supernumerary cross-vein equal in length to the middle cross-vein; posterior cross-vein more than twice the length of the latter, rather sinuose, tip of the anterior branch of the fifth longitudinal vein joining the margin opposite the middle of the second posterior cell, a very prominent wing-fold running close to the posterior side of the fifth longitudinal for the whole of its length, and another on the anterior side in the anal cell.

Skuse's description was made from damaged specimens. Theobald adds the following:—The fore legs have the femora and tibiæ deep violet and blue, the metatarsus white, except just at the base, the first tarsal all white, the second, third, and fourth dark brown, a trace of white at the base beneath the second joint; in the mid legs the femora are steel-blue, green and violet, golden beneath; tibiæ yellow scaled, black at the apex and base, the metatarsi with a broad white basal band, metallic black apically, first and second tarsal joints white, third and fourth small, the latter brown, the former brown with a white basal band; in the hind legs the femora are metallic black, blue, violet and golden beneath; tibiæ very metallic purple, with a golden-yellow band in the middle; metatarsus brilliant purple, base with a narrow white band; first tarsal entirely white except just at the apex, last three joints dark metallic purple. Ungues of the female all equal and simple; in the male they are all unequal, the larger one with a tooth, which is shorter and blunter on the hind pair; the small ungues simple.

♂. Length of antennæ,	4.06 mm.
Expanse of wings,	8.39 × 1.54
Size of body,	11.17 × 2.02.

This magnificent insect has a wide range, having been taken originally by Masters at Port Denison; at Thursday Island by Mrs. Eyre; at North Percy Island by Mr. Tryon; and by myself in many scrubs from Caboolture to Moreton Bay and Enoggera.

It is not a biting mosquito; to obtain good specimens it is advisable to hatch out the larvæ, which may be found in scrubs in crevices in trees holding a pint or so of water; the larvæ are red in colour, very large and voracious, devouring other mosquito larvæ found in similar situations, *e.g.*, those of Scutomyia notoscripta and Culex occidentalis ; they are to be found occasionally in water-butts about habitations, situated near jungles or scrubs ; I have obtained them in scrubs by hanging up or nailing to trees large jam tins filled with water and rotten leaves ; the eggs are laid singly.

MUCIDUS.—Theobald (1901).

Head clothed with narrow-curved, forked upright, and long twisted scales. Thorax with narrow-curved scales and long twisted apically expanded scales as on the head. Abdomen with dense scales, which stand out, and give it a ragged appearance. Wings covered with broad pyriform scales, many of which are particoloured. Palpi of the female half as long as the proboscis ; antennæ of the female fourteen-jointed including the basal joint ; of the male fifteen-jointed ; palpi of the male five-jointed, a little longer than the proboscis. Wings with the venation much as in Culex, but the posterior cross-vein is nearer the apex of the wing than the mid cross-vein. Legs banded, densely scaled with projecting scales ; fore and mid ungues of the male unequal, the larger with two, the smaller with one tooth ; hind ungues equal, small, toothed ; in the female all the ungues are small, equal, thick, and with a short thick tooth.

The members of this genus are large species, and present a curious mouldy appearance.

Mucidus alternans.—*Westwood* (1835).

♀. Head brown, with a patch of white scales in the middle and on each side, a pure white edge to the eyes, ochraceous scales between the white patches, and two tufts of yellow hairs projecting forwards ; eyes black, purple in some lights ; antennæ ochraceous, bases at the joints dark, basal joint bright ferruginous, with a few white scales, verticillate hairs brown ; proboscis broad, bright ochraceous yellow, with numerous black scales at the tip and others at the base ; palpi covered with parti-coloured ochraceous and deep purple scales and pure white ones, the dark colour predominating at the basal parts, the yellow in the middle, and the white scales at the tip. Thorax densely clothed with yellowish-brown, curved scales and white spots, formed by groups of pure white scales, longer and broader than the rest, a median and two lateral rows of bristles, and numerous dark bristles at the sides, the white spots are as follows : three in front against the head, three very clear ones in the middle, and broken masses of white scales at the sides, and another small patch just in front of the scutellum ; scutellum ochraceous brown, with white scales ; metanotum brown ; pleuræ darker brown, with numerous white scales. Abdomen deep purplish-black to brilliant purple, depending on the light, covered with bright ochraceous yellow, white and parti-coloured scales, the white scales forming more or less basal bands, and a white median spot to each segment, especially posteriorly ; each segment has also an apical border of pale hairs ; first segment nude, with only a patch of white scales in the middle, and numerous fine pale hairs ; the white scales at the bases of the abdominal segments spread out laterally and form distinct lateral spots ; on the venter the abdomen is broadly, basally banded with white scales, the parti-coloured ones forming only narrow apical borders. Legs thickly clothed with ochraceous, parti-coloured, and white scales, which stand up from the surface more than usual, all the joints banded ; fore femora not very distinctly banded ; tibiæ with three white bands, metatarsus with two, the first two tarsal joints with basal white bands, last two unbanded ; in the mid legs the femora are white at the apex, and have one distinct white band and two white patches below, not forming bands ; tibiæ and tarsi as in the fore legs ; in the hind legs the tarsi are all basally white. Ungues thick, short, uniserrated ; the ungues, which are equal on all the legs, have spines on their sides. Wings with the veins densely covered with large parti-coloured and yellow and white scales, the fringe alternately black and white ; the majority of the scales are half purple and half yellowish-brown, but on the costa and first longitudinal, just over the base of the fork-cell, the scales are plain yellowish-white, forming a distinct spot ; there are also white scales forming spots at the base of the fork-cells, on their stems, a dusky spot over the cross-veins and at the base of the second long vein, where it joins the first ; posterior cross-vein a short distance in front of the mid cross-vein and much longer ; first submarginal cell longer and narrower than the second posterior cell, their bases about level and their stems, which are white scaled, shorter than the cells and nearly equal in length. The surface covered with very minute bristles. Halteres ochraceous.

Length, 7.5 to 8 mm.

♂. Head with white and ochraceous scales and long yellow hairs, border of the eyes white scaled. Antennæ ochraceous, with narrow darker rings, plume hairs black at the base on the inside, the remainder silky, ochraceous ; apical joints dark ; palpi with ochraceous ground colour, the first two joints and ends of remaining joints covered with dark scales, the bases white scaled, hairs silky ochraceous and brown ; proboscis yellow, with black apex and black scales on the base. Thorax with curved yellowish, and numerous long white scales, giving it a frosty and mouldy appearance ; the yellow scales are especially noticeable as a large patch at the sides in front and as a median stripe, and also again at the back of the mesonotum ; scutellum clothed with white scales ; metanotum brownish yellow. Abdomen much as in the female, but with more frosty-white scales ; claspers yellowish. Legs as in the female, but the scales are longer, and stand out more from the surface. Front and mid ungues unequal, the large one with two teeth, the smaller with only one tooth ; in the hind claws both are equal, small, and with a single tooth.

Length, 7.5 mm.

Habitat, N. S. Wales (*Skuse*) ; Natal (*Walker*) ; Queensland (*Bancroft*).

This is the " Scotch Grey " ; it is a magnificent insect under the microscope ; common throughout the year all over Queensland, but especially along the coast, and extending into N.S. Wales, where it is sometimes called " Hexham Grey." It is a vicious biter ; does not live in confinement. It oviposits singly, the eggs are large, oval, black in colour, pitted and float on their side. The larvæ are to be found plentifully in salt-water swamps, especially in stagnant pools of water left by the high spring tides ; when there is no salt water available this mosquito will oviposit in fresh water ; the larvæ devour other larvæ, but not to a great extent.

STEGOMYIA.—Theobald (1901).

Palpi short in the ♀ ; long in the ♂, four-jointed in the ♀, and five-jointed in the ♂. Head clothed completely with an armour of broad flat scales ; mesothorax covered with either narrow-curved or spindle-shaped scales, scutellum always with broad flat scales ; abdomen completely covered with flat scales, banded or unbanded, with white lateral spots. The ♀ palpi are small, never more than one-third of the length of the proboscis ; those of the ♂ are as long, or longer than the proboscis and usually nude. Wings with similar venation to a typical Culex, but the fork cells short.

Stegomyia fasciata.—*Fabricius* (1805).

♀. Head densely clothed with broad flat scales, black and grey on each side, a white patch in the middle in front extending back to the neck, a white patch on each side, a thin white border to the eyes. Clypeus covered with silvery scales ; the scales at the back of the crown with an ochraceous tinge in some lights, long black bristles projecting forwards ; eyes black, with silvery patches in some specimens ; antennæ blackish, with narrow pale bands, basal joint black, with a patch of white scales on the inside (appearing as two small white spots with a lens), second joint sometimes pale testaceous at the base, pubescence and verticils dark brown ; palpi black scaled, the last joint with pure silvery-white scales inside and on the tip, sometimes entirely white. Thorax dark brown, covered with reddish-brown, pale golden and creamy curved scales, ornamented as follows : a pure-white, broad curved band on each side, curved inwards about the middle of the mesonotum and continued back as a thinner pale line to the scutellum, two thin parallel pale scaled lines between extending about half way across the mesonotum and more or less on the scutellum, a short white line in front between these two, a white spot on each side of the thorax in front near the neck ; scutellum with a thick row of white scales and with three tufts of bristles ; metanotum brown ; pleuræ dark brown with several patches of silvery scales. Abdomen dark brownish-black, with basal bands of white scales ; first segment densely clothed with creamy scales and edged with pale hairs ; sides with patches of white scales forming more or less flat triangular patches. Legs with the femora with the bases yellowish, dark scaled towards the apex, extreme tip pure white, ventral surface partly covered with white scales ; tibiæ black ; metatarsi with basal white bands ; fore tarsi with the first joint basally white, rest black ; mid-tarsi the same ; hind tarsi all basally white, except the last joint, which is pure white, penultimate joint mostly white with black apex ; fore and mid ungues both toothed and hind without teeth. Wings with the veins clothed with very long narrow brown scales, and short median broad dark brown ones ; first sub-marginal cell longer and but slightly narrower than the second posterior cell, base of the former a little nearer the base of the wing than the latter ; posterior cross-vein about one and a half times to twice its length distant from the mid cross-vein. Halteres ochraceous, sometimes the knob is slightly fuscous.

Length, 3.5 to 5 mm.

♂. Darker than the ♀. Head black, with white scales in front and in the middle ; antennæ brown, with paler brown bands, sometimes almost white, basal joint jet black with a large tuft of pure white scales, plumes brown ; palpi black with four white basal bands ; proboscis black ; thorax marked as in the female, but much darker, and the white scales clearer and more silvery. Abdomen with the first segment with creamy scales, bases of the second to fifth segments white, fifth to eighth with clear white lateral spots ; these spots also occur on the front segments, but quite at the sides. Legs as in the female. Fore claws unequal, the larger one with a short blunt tooth, smaller one untoothed ; mid ungues unequal, untoothed ; hind equal, untoothed.

Length, 3 to 4.5 mm.

This species is subject to very considerable variation, both in size and in colour of scales ; it is known as the " Tiger mosquito " plentiful about habitations throughout the world, in warm latitudes. It oviposits singly, the larvæ are found in association with those of Culex fatigans in small collections of water in or near habitations ; it is a most annoying insect, biting in the house in the day time, more particularly ; present and biting throughout the year in Brisbane ; it is an introduced species and never goes wild ; it is the intermediary host for the Yellow Fever parasite and possibly also for Dengue Fever.

STEGOMYIA PUNCTOLATERALIS.—*Theobald* (1903).

♀. Head covered with flat bronzy-brown scales, and a pale almost white, border around the eyes. Palpi, proboscis, clypeus and antennæ deep black. Palpi slightly clavate, much contracted at the base, apical segment minute. Thorax black, with bronzy-brown narrow-curved scales, paler almost grey ones behind and at the sides forming lateral pale lines, and a narrower one just over the roots of the wings ; prothoracic lobes white scaled, separated from the rest of the thorax by a prominent black line ; pleuræ densely white scaled ; scutellum with small flat grey scales and brown border-bristles, four to the mid lobe ; metanotum deep brown. Abdomen deep brown with violet reflections, in some lights under the microscope bright violet, each segment with prominent apical lateral creamy spots, which in some segments spread almost across the apical borders so as to form prominent pale lines, but they never quite meet, except in the penultimate segment ; the first segment testaceous, with large dense black scales in two confluent spots, with brown bristles ; border-bristles very short, pale brown, shining apically. Venter creamy-white ; the apical spots are very pronounced on the ventral surface in dried specimens. Legs jet black ; under surface of femora, tibiæ, and first hind tarsal silvery-white ; ungues small, equal and simple. Wings with brown scales ; fork-cells of moderate length, the first sub-marginal cell considerably longer and narrower than the second posterior cell, its base the nearer to the base of the wing ; stem of the first sub-marginal cell more than half its length ; stem of the second posterior cell nearly as long as the cell ; posterior cross-vein about twice its own length distant from the mid cross-vein. Halteres with dull testaceous stem and fuscous knob.

Length, 4.5 mm.

♂. Thorax and abdomen as in the ♀, but the abdomen narrower and the apical lateral spots not quite so prominent. Basal lobes of genitalia densely bristly, bristles large, and arise from distinct papillæ ; claspers long and thin, simple. Antennæ deep brown, with deep brown plume-hairs, pale banding more or less noticeable ; probosics black ; palpi shorter than the proboscis, deep blackish-brown, no hair tufts, the last two segments of nearly equal length, the apical one slightly shorter and with terminal bristles. Legs as in the ♀ ; fore ungues unequal, the larger uniserrated, the smaller simple ; mid ungues unequal, both simple ; posterior ones very small, equal and simple, much curved. Wings with brown scales ; the first sub-marginal cell longer and narrower than the second posterior cell, the base nearly level with that of the latter ; stem of the first sub-marginal cell about one-third the length of the cell ; stem of the second posterior about two-thirds the length of the cell ; posterior cross-vein considerably longer than the mid and more than twice its length distant from it.

Length, 5.5 mm.

This is rather a rare species in the vicinity of Brisbane at any rate ; it is a biting mosquito, produces a shrill note altogether different from the hum of other mosquitoes. When resting the hind legs are cocked up and bent forwards. It oviposits in a long narrow raft, jet black in colour and very like that of Culex tigripes ; the larvæ are found occasionally in water-butts and tanks ; in appearance and habit they resemble those of Stegomyia fasciata and Scutomyia notoscripta, feeding and spending most of their time at the bottom, in contradistinction to Culex larvæ, which live for the greater portion of their life on the surface. They are grey in colour, with black bristles ; have a brown head, black anal joint, and short black respiratory siphon.

PSEUDOSKUSEA.—THEOBALD (1907).

Head with flat scales ; palpi short in ♀, long in ♂, very thin, no hair tufts, resembling Desvoidea. Scutellum with narrow-curved scales. Mid ungues of male equal in size ; a character found only in the genus.

PSEUDOSKUSEA MULTIPLEX.—*Theobald* (1903).

♀. Head covered with flat scales of a deep brown to black colour with violet reflections. ochraceous in the middle, at the sides and around the eyes, and with numerous black upright forked scales behind ; clypeus, palpi and proboscis black ; antennæ deep brown, basal joint and base of the second joint testaceous. Thorax deep testaceous brown, covered with hair-like curved bronzy black scales, a more or less irregular band of narrow curved creamy to ochraceous ones running across the mesonotum ; in some lights the scales, except the pale ones, appear quite black ; scutellum deep brown, testaceous at the base, with hair-like black and narrow-curved creamy scales, six large black posterior border-bristles to the mid-lobe ; metanotum testaceous brown ; pleuræ shiny brown, with a few pale scales and golden bristles. Abdomen black, covered with black scales with violet reflections, posterior border-hairs pale, giving a quasi-banded appearance in some specimens, and with white basal lateral spots, venter with basal pale, almost white bands. Legs dark brown, almost black, unbanded ; coxæ pale, also the base and venter of the femora ; fore and mid ungues rather small, equal and uniserrated, the teeth very small ; femora, tibiæ and metatarsi with a few spines ; femora rather swollen. Wings with the fork-cells rather short and with brown scaled veins. First sub-marginal cell longer and narrower than the second posterior cell, its base slightly nearer the base of the wing than the base of the latter, its stem a little more than half the length of the cell ; stem of the second posterior not quite as long as the cell ; cross-veins rather pale, the posterior about its own length distant from the mid or a little less ; the supernumerary cross-vein is longer than the mid, but not quite so long as the posterior cross-vein. Halteres with ochraceous stems and fuscous knobs with a few grey scales.

Length, 4 mm.

♂. Head all black scaled, with the lateral pale areas only. Thorax and abdomen as in the ♀. Palpi rather longer than the proboscis, very thin, black, no hair-tufts, resembling those of Desvoidea. Apical segment of palpi slightly shorter than the penultimate segment. Wings long, fork-cells short, first submarginal cell longer and narrower than the second posterior cell, its base slightly nearer the apex of the wing than that of the second posterior, its stem as long as the cell ; stem of the second posterior longer than the cell ; supernumerary and mid cross-veins almost in one straight line, the posterior about its own length distant from the mid. Legs as in the ♀ ; fore ungues unequal, the larger nearly twice as long as the smaller, both uniserrated, the serration of the smaller close to the base ; mid ungues equal and uniserrated ; hind equal and simple.

Length, 4 to 4.5 mm.

This insect is never plentiful, but has a wide range in South Queensland ; it is a biting mosquito, and at first sight mistaken for Culex annulirostris, but on closer inspection the yellowish band on the thorax is noticed, and the unbanded proboscis ; under the microscope it is seen not to be Culex. I secured males, from breeding out a mixed lot of larvæ obtained from a cask, placed in a small scrub on Deception Bay.

Eggs and larvæ not observed.

SCUTOMYIA.—Theobald (1904).

Head covered with flat scales except in the mid region, where there are narrow-curved scales forming a median row. Scutellum entirely clothed with flat scales. Other characters as in Macleaya. This genus differs from Stegomyia in having narrow-curved scales on the head, and from Macleaya in having the scutellum with all flat scales. From Leicesteria it differs in having all flat scales on the scutellum.

Scutomyia notoscripta.—*Skuse* (1888).

♀. Head black, with black scales some upright forked ones ; a patch of yellowish-white scales in the middle behind, and a silvery-white border to the eyes ; bristles black ; antennæ black, with pale pubescence and black verticillate hairs ; palpi black scaled, with the apex pure silvery-white ; proboscis black, with a pure silvery-white band in the middle, slightly testaceous at the base ; mesothorax deep umber-brown to almost black, with numerous bronzy-black flat spindle-shaped scales (under a hand lens it looks velvety umber-brown) ; there is a narrow median silvery-white line, which expands round the bare patch in front of the scutellum, a long curved one on each side, a short one on each side of the median line in front, and another short one on the outside of each of the curved lines behind ; scutellum brown, with a basal hand of pure silvery-white, composed of a single row of flat broad scales, a few also on the mid lobe ; bristles black, there being five in the middle lobe ; pleuræ paler brown than the rest, with six large and several smaller patches of white scales ; metanotum pale brown ; mesonotum beset with numerous long black bristles. Abdomen covered with black scales with purplish reflections, each segment with a basal lateral patch of silvery-white scales, and a few white scales on the base of the segments every here and there ; posterior borders with golden-brown scales ; first segment deep ochraceous, with ochraceous and black scales, and numerous golden hairs. Legs with the coxæ pallid, femora black, pale at the base and down one side with a silvery-white line in front and a white apical spot ; tibiæ black, also with a pure silvery-white line along its length ; metatarsi black, with broadish basal white bands ; in the fore legs the first tarsal joint with a basal white ring, remainder black, and in the mid legs there is a trace of basal white banding on the second joint as well ; in the hind legs all the tarsi have a broad basal white band, save the last, which is pure white except for a patch of brown scales below at the apex ; front ungues equal, with a single tooth on each, mid and hind equal and simple, the latter very small. Wings with the veins covered with black scales, their apical terminations with long thin lateral scales and shorter broad ones also lateral ; first sub-marginal cell considerably longer and narrower than the second posterior cell, its base almost level with that of the latter, if anything a little nearer the base of the wing ; stem less than one-third of the length of the fork-cell ; second posterior cell about one and a-third times the length of its stem ; posterior cross-vein twice its own length distant from the mid cross-vein ; fringe grey. Halteres with pale stem and black knob.

Length, 4 to 5 mm.

♂. Head covered with black scales with a border of silvery-white ones round the greenish-golden eyes, a patch of ochraceous scales in the middle of the back of the head and a row of black bristles projecting forwards. Antennæ brown, banded, verticils silky brown, basal joint with a small patch of silvery-white scales ; palpi ochraceous-brown, sparsely covered with dark brown scales basally, becoming jet black towards the apex, tast two joints with broad basal bands of pure white scales ; proboscis black, with a band of pure white on the base of the apical half. Abdomen like the ♀, but with a distinct basal band of ochraceous and white scales, the silvery lateral basal spots not so distinct on the anterior segments ; genitalia brown. Legs as in the ♀, but the basal band on the second tarsal joint of the mid legs is often not visible ; ungues of fore and mid legs unequal, the larger one toothed with a long tooth, the smaller with a short one nearer the base, hind ones equal, with a trace of a small central tooth. Wings with the first sub-marginal cell longer and much narrower than the second posterior cell, the cell about one and a-half times the length of the stem ; stem of second posterior cell not quite as long as the cell, about the same length as that of the former cell ; bases of the cells nearly opposite ; posterior cross-vein about one and a-half times its own length distant from the mid cross-vein.

Length, 4.5 mm.

This elegant insect is very common, throughout the year, all over Southern Queensland, New South Wales and Victoria. It can be told at a glance from Stegomyia fasciata, the " Tiger Mosquito," by its darker colour and banded proboscis, and from Culex vigilax by the silvery line of scales on the scutellum, and the banded proboscis, and also from the curious habit of continuously lifting up and down the hindmost pair of legs ; it oviposits singly in small collections of water in crevices and hollows of trees both in scrub and forest, in flower pot saucers in the fernery, in water jugs in the house, in jam tins and bottles in the rubbish heap ; the eggs are oval, black with a silvery meshwork pattern ; it lives for months in confinement, but refuses to oviposit, or only on rare occasions ; the eggs are laid at the edge of the receptacle at the water line ; it is a biting mosquito, but never becomes so numerous as to cause annoyance in Queensland at any rate. Skuse discovered this species in Sydney, and said it caused a painful wound ; here its bite is scarcely felt ; nothing compared with that of Culex vigilax, the " Black Bush Mosquito."

MACLEAYA.—THEOBALD (1903).

Head covered with flat scales over most of its surface, but with a median line of narrow-curved scales. Palpi short in the female, composed of three segments, with two basal constrictions ; apical segment minute, penultimate one large, swollen apically and truncated ; the ante-penultimate broad apically, becoming narrower and swollen again basally, two basal constrictions looking almost like joints. The apex of the penultimate segment is studded with round spots. Palpi long in the ♂, longer than the proboscis, the two apical segments short, rather swollen, also the apex of the ante-penultimate ; hair tufts rudimentary. Thorax with narrow-curved scales ; scutellum with small flat scales on the median lobe, narrow-curved ones on the lateral lobes.

This genus comes near Stegomyia, but differs in having narrow-curved scales on the centre of the head and on the lateral lobes of the scutellum.

MACLEAYA TREMULA.—*Theobald* (1903).

♀. Head black with flat black scales forming a large patch on each side, then a small grey patch, another small black one, and then more grey scales outside ; the middle of the head with silvery white narrow-curved scales, and a silvery white line around the eyes ; numerous small black upright forked scales over the occiput ; palpi black with grey tips ; clypeus and proboscis black ; antennæ black, the base of the second segment bright testaceous, the second segment with small grey scales. Thorax deep brown, covered with very small narrow-curved bronzy-brown scales, with more or less pronounced irregular lines of pale golden scales ; the line over and in front of the root of each wing curved ; the golden scales are broader than the dark ones ; on each side in front is a short line of white scales and the prothoracic lobes are covered with similar coloured ones ; in front of the scutellum are irregular (often indistinct) short lines of larger pale creamy scales, and some long backwardly projecting black ones ; scutellum testaceous-brown, the mid lobe with small flat grey scales in the middle, black ones at the sides, the lateral lobes with narrow-curved whitish ones ; border-bristles large and black, there are also very large black ones on the mesonotum ; metanotum black ; pleuræ brown, with patches of flat grey scales. Abdomen black, the segments with basal median creamy spots, and basal lateral silvery white ones ; the last segment (sometimes the last two) without the median spot ; first segment testaceous, with black scales ; border-bristles jet black ; venter white at the base, some of the segments with basal white areas, the apical segments black ; genitalia white scaled. Legs black, banded ; coxæ pale with patches of white scales, very long ; femora black above, white ventrally ; knee spot white ; tibiæ black ; in the fore and mid legs the first tarsal and second tarsal segments have narrow white basal bands, last three tarsals black ; in the hind legs the first, second and third tarsal segments have broad snowy-white basal bands, fourth tarsal all black, the fifth all white ; ungues of all three pairs of legs equal and simple. Wings with brown scales, the lateral scales long and thin ; the first sub-marginal cell longer and narrower than the second posterior cell its base nearer the base of the wing, its stem less than half the length of the cell, stem of the second posterior cell as long as the cell ; posterior cross-vein longer than the mid, about one and a-half times its own length distant from it ; first longitudinal vein and the sub-costal densely scaled with large dark brown spatulate scales ; fringe brown ; base of the wing pale. Halteres pale ochreous.

Length, 4.5 mm.

♂. Palpi black scaled, apical segments white, base of penultimate segment white, also apex of ante-penultimate, a small pale band about the middle of the long ante-penultimate segment, a few prominent black bristles on the last two segments, not forming regular hair-tufts, a distinct black spine at the apex of the ante-penultimate segment ; the apical segment about half the length of the penultimate ; plume hairs of antennæ deep brown. Thorax as in the ♀. Abdomen narrow, brown, with either basal lateral white spots or basal white bands, which spread out laterally; hairy. Basal lobes of the genitalia broad and truncated. Legs ornamented as in the ♀ ; fore and mid ungues unequal, the larger uniserrated ; hind equal and simple.

Length, 4.5 mm.

This rare and delicate mosquito, I bred from a few larvæ obtained from a well and also a water cask at Deception Bay ; it lives well in confinement, and will bite when encouraged ; oviposits singly. The larvæ are pale in colour, almost white ; during one winter I kept some alive and they appeared to give birth to young larvæ (pædogenesis) on August 26th, 1903 ; I tried to verify this observation, but it did not occur in summer ; unfortunately, I have not been able to obtain larvæ since with which to make further observation in winter. One or two of these mosquitoes oviposited in an aquarium covered with muslin ; in due course young larvæ were noticed, and these grew to maturity, and were turning into pupæ when a number of minute larvæ were observed ; the question was :—Were these minute larvæ produced by the other larvæ ? If they were not, they were from eggs, which had not hatched out in the first instance, and which had lain dormant about two months. The eggs of some mosquitoes, which oviposit singly, easily sink in water if touched, and it is reasonable to suppose that the incubation period might be affected in consequence. Many more observations need to be made to clear up these questions.

GILESIA.—Theobald (1903).

Head covered with rather broad flat spindle-shaped scales ; mesothorax with scattered flat spindle-shaped scales and narrow curved ones ; scutellum with small flat scales and some spindle-shaped ones. Palpi four-jointed in the ♀, rather long, about one-fourth the length of the thick proboscis, apical joint long, penutlimate joint swollen, globose, the two basal joints small. Basal joint of the antennæ with numerous hair-like bristles and a few small flat scales. Ungues very thick, rather short and all with a thick blunt tooth. Wing venation much as in Culex ; fork-cells short and the veins clothed with rather broad elongated scales like Tæniorhynchus.

Male unknown.

This genus is related to Culex on the one hand and Stegomyia on the other, whilst the wings give it a Tæniorhynchus-like appearance. The important characters are the scale ornamentation of the head and scutellum and the hairy and scaly basal antennal joint and the curious claws and palpi. A single species only is known from Queensland.

GILESIA ACULEATA.—*Theobald* (1903).

♀. Head brown, covered with flat spindle-shaped pale creamy scales, except round the eyes, where the scales are smaller and bright golden ; there are also numerous narrow black upright forked scales ; clypeus shiny black ; palpi bright yellowish-testaceous with rather scanty flat black scales and a few black bristles, longish, about one-fourth the length of the black proboscis, which is rather thick ; antennæ brown, the basal joint and the three following joints bright ochraceous, basal joint with numerous black hairs and a few small flat black scales, second joint with a few small black scales also. Thorax dark brown, scantily covered with rather large flat creamy spindle-shaped scales at the sides of the mesothorax and behind, with narrow-curved creamy yellow scales in the middle ; a few rather short black bristles over the roots of the wings ; scutellum dark brown, testaceous at the base, irregularly covered with small flat and small spindle-shaped creamy scales, with apparently a double row of brown bristles to the border of the median lobe ; metanotum brown and deep testaceous, shiny ; pleuræ dark rich brown, with numerous scattered pale flat scales. Abdomen greyish brown at the base, steely black at the apex (when denuded), covered with deep brown scales with dull violet reflections, traces of irregularly creamy white to almost yellow basal banding on the basal segments, on the last three apical segments the pale scales spread out over the whole of the segments, giving them a mottled appearance, and especially forming more or less distinct ochraceous yellow apical bands, the scales on the apical segment being particularly bright ; the basal pale-scaled bands spread out laterally to form distinct large lateral creamy white spots ; venter with scattered white scales. Legs brown, mottled on the femora, tibiæ, and metatarsi with yellow scales ; tarsi and metatarsi with basal creamy white bands, except the last tarsal joint apex of femora, tibiæ, and other joints dark scaled ; the pale scales form more or less of a ring before the black apex of the femora ; tibiæ very bristly, and to some extent the femora ; the whole of the last tarsal joint on all the legs black ; ungues large and thick, all uniserrated. Wings large, slightly clouded ; the veins covered with brown Tæniorhynchus-like scales, wings longer than the abdomen ; fork-cells short ; first sub-marginal cell slightly narrower and scarcely longer than the second posterior cell, its stem more than half the length of the cell, its base a little nearer the apex of the wing than that of the second posterior ; stem of the latter more than two-thirds the length of the cell ; posterior cross-vein rather close to the mid cross-vein. Halteres with pale stem and brown knob.

Length, 6 mm. Time of capture, May. Habitat, Southern Queensland.

This is a large biting mosquito, at first sight resembling Culex tigripes ; only two females have so far been taken ; found in Mrs. Bell's scrub on Deception Bay. Endeavour was repeatedly made to capture more specimens. A male mosquito, bred from larvæ obtained in the Burpengary scrub, appeared to me to be this species; unfortunately it was either broken up in transit to England or lost at the British Museum, before being examined by Mr. Theobald.

GRABHAMIA —THEOBALD (1903).

Allied to Culex and Tæniorhynchus. Palpi of ♀ four-jointed, with the apical joint minute, penultimate joint long and thick, two basal joints moderate sized. Palpi of ♂ long; the last two joints may be slightly swollen and have distinct hair-tufts. Head with narrow-curved scales, upright forked ones, and flat lateral ones. Thorax with narrow-curved scales. Legs mostly mottled and spotted, Wings with rather thick median scales and often short broadish lateral ones on some of the veins, neither so long nor dense as in Tæniorhynchus. Wings short and stumpy. Fork-cell short. Scales mottled.

GRABHAMIA FLAVIFRONS.—*Skuse* (1888).

♀. Head deep brown with large pale creamy and golden narrow-curved scales, with upright forked scales on the occiput, darker at the sides giving a dark-hued appearance to them, flat pale scales at the sides and some brown and golden chætæ projecting forwards; palpi deep brown with white scaled apex and a narrow white band towards the base and some long brown chætæ; proboscis black at the apex with scattered pale scales on the basal two-thirds; antennæ brown with pallid bands and pale creamy scales on the basal segment. Thorax deep brown with narrow-curved golden scales all over it, paler in front of the scutellum; scutellum pale brown with pale creamy scales and brown border-bristles; pleuræ brown with flat pale scales. Metanotum brown. Abdomen deep brown with pale creamy scales at the bases of the segments irregularly disposed and spreading out laterally, last two segments with many pale scales; basal segment pale brown with scattered pale creamy and a few dark dusky scales and pale golden hairs. Venter mostly pale scaled. Legs with mottled brown and creamy femora and tibiæ, the fore and mid first tarsals and the fore two following tarsals with narrow yellowish pale basal bands, the hind legs with an extra pale band on the third tarsal. Ungues of the fore and mid legs equal and uniserrate. of the hind equal and simple. Wings with yellow scales scattered amongst the brown, with dense large broad spatulate and narrower linear scales. The broad spatulate scales are evidently the median vein scales widely expanded. First sub-marginal cell longer and narrower than the second posterior cell, their bases nearly level, stem of the first fork-cell about three-fourths the length of the cell; stem of the second posterior two-thirds the length of the cell;

posterior cross-vein not quite as long as the mid about its own length distant from it. The wings are noticeable for the fact that the scales are larger than in most Grabhamias. Halteres pale creamy.

Length, 4.8 mm.

This is a biting mosquito, distributed over a wide area in Southern Queensland, but rare about Brisbane ; I found two specimens in the house at Deception Bay, and one on Taylor's Range ; in a few mosquitoes sent from Charleville this species occurs, and also in a small collection from Normanby Station, which points to its being commoner inland. Mr. Tryon took one in Victoria Park, Brisbane ; it also occurs in New South Wales (Masters).

The eggs, larvæ and males have not been observed. To the naked eye it has some resemblance to both Culex vigilax and Culex occidentalis ; but under the microscope the wing scales are seen to be very remarkable and beautiful.

CULEX.—LINNÆUS. (1758)

Palpi of the ♀ short, three or four-jointed ; of the ♂ long, three-jointed ; constrictions at the bases may give the ♀ a four or five-jointed and the ♂ a five-jointed appearance ; the last joint in the ♀ is usually large ; the male may have the last two joints swollen, much as in Anopheles, or they may be narrower and the last pointed. The antennæ are pilose in the ♀, plumose in the ♂, and are composed of fourteen joints in the ♀, fifteen in the ♂, the last two in the male being long and thin. Head ornamented with narrow curved scales over the occiput, and upright forked scales especially thick on the back of the head, flat scales on the sides ; thorax with narrow-curved hair-like or spindle-shaped scales ; scutellum with narrow-curved or spindle-shaped scales only ; abdomen with flat scales ; wings with small median scales to the veins and more or less thin linear lateral ones to some or all of the veins. In the wings the first submarginal cell is longer and narrower than the second posterior cell, and the posterior cross-vein is always nearer the base of the wing than the mid cross-vein. The ungues of the ♀ are equal, simple or uniserrated, of the ♂ unequal on the fore and mid legs, the larger uni- or biserrated, the smaller uniserrated or simple.

The genus contains a large number of species. An attempt has been made by Felt to divide it up into a number of genera upon certain characters, which, according to Theobald, will not hold.

CULEX FATIGANS.—*Wiedemann* (1828).

♀. Head brown, covered with pale golden-brown to creamy curved scales and a few scattered black, dark brown, and occasionally ochraceous upright forked scales, flat creamy-white scales laterally, and a faint pale narrow border round the eyes, numerous black and brown bristles; antennæ dark brown, with pale pubescence; basal joint pale ferruginous to ochraceous basal half of the second joint pale ferruginous; palpi densely covered with deep brown scales, and in some specimens with a few pale grey ones, and with numerous small black bristles; proboscis covered with dark brown to violet-black scales, sometimes paler in the middle, and with a pale apex Thorax brown, with two darker lines on the denuded surface, sometimes with traces of a third median line, covered with bright golden to pale golden or almost fawn-coloured curved scales, some being rather broader than others; there are also three rows of black bristles, the median one ending at the bare space before the scutellum; scutellum dull ochraceous, with pale golden to creamy curved scales and brown border-bristles, which vary in number on the median lobe; metanotum pale chestnut-brown, in some specimens with darker markings; pleuræ pale testaceous, with three or more small patches of pale, almost white scales. Abdomen covered with brown to deep purplish-brown or almost black scales, each segment with a basal white band rather expanded in the middle, and with white lateral patches, which show especially in gorged specimens; posterior borders of the segments with pale golden-brown hairs; venter with numerous dull white scales; the first abdominal segment is dull ochraceous-brown (black in gorged specimens), with two patches of dull violet-black or ochraceous scales and numerous golden-brown hairs. Legs with the coxæ deep ochraceous; femora deep brown above and at the apex, grey beneath, and tipped with a few yellow scales; tibiæ deep brown, with a deep ochraceous apical spot (sometimes absent), and with pale dull brown bristles; metatarsi and tarsi deep brown to almost black, with dull ochraceous reflections in some specimens; hind metatarsi a little shorter than the hind tibiæ; ungues equal, simple, and of moderate size. Wings longer than the abdomen, the veins clothed with brown and purplish-brown scales; long scales on the whole of the second and fourth long veins, also on the third, the upper branch of the fifth, and the end of the sixth, as well as on both the branches of the fork-cells; the first sub-marginal longer and slightly narrower than the second posterior cell, its stem short, always more than one-fourth the length of the cell; the stem of the second posterior cell longer than that of the sub-marginal cell, but not nearly as long as its fork; the posterior cross-vein a little longer than the mid-cross-vein, distant from the latter always more than its own length, usually about twice its own length distant. Halteres ochraceous, slightly fuscous at the top.

Length, 4.5 to 5.5 mm.

♂. Head ornamented as in the ♀; antennæ deep umber-brown, with pale bands and deep brown verticillate hairs; basal joint large, pale ochraceous, palpi deep ochraceous, covered with brown scales, with a single pale band towards the basal third, longer than the proboscis by the last joint and nearly half the penultimate joint, the last joint tapering to a point, just a little longer than the penultimate joint; clothed on each side of the last two joints with moderatey long but scanty dark brown hairs, which also exist at the apex of the ante-penultimate joint; proboscis deep ochraceous, swollen towards the apical end, covered with deep purplish-brown scales; apex testaceous, sharply acuminate. Abdomen narrow, covered with brown scales, deep purplish-brown to almost black in some specimens, with basal white bands, which on the last few segments spread out laterally; venter with grey or dull white scales, clothed above and laterally with numerous golden-brown hairs. Wings with the bases of the fork-cells nearly level; the first sub-marginal cell from one and a-half to two and a half times as long as the stem; stem of the second posterior cell about as long as the cell; posterior cross-vein about twice its own length distant from the mid cross-vein. Legs rather more ochraceous than in the ♀; fore and mid ungues unequal, dark brown to black; in the fore legs both are toothed, the larger one having a long blunt tooth about the middle, the smaller a sharp-pointed one towards the base; in the mid legs the ungues are very similar, but the larger tooth is a little more curved; hind ungues equal, small, moderately curved.

Length, 4 to 5 mm.

The " House Mosquito"; man's greatest enemy; it is purely nocturnal in habit; it has a wide distribution in the world, associated with the human race everywhere except in very cold latitudes; breeds in stagnant water, in tanks, and even in cesspits, and occasionally in watercourses up to a mile distant from habitations. Oviposits in a large boat-shaped raft; the eggs are white when freshly laid, but change to dark brown or black in a few hours even if kept in absolute darkness; the eggs are laid as a rule between 6 and 8 p.m.

This mosquito is the cause of untold misery to man, and the domesticated animals; is the intermediary host for a number of parasites, perhaps the most important being Filaria of man and the dog. It will live in confinement, fed on banana or dates up to two months.

CULEX VITTIGER.—*Skuse* (1888).

♀. Head brown, clothed with rather long, loose pale curved scales in front, and with similar ochraceous ones behind, and with numerous thin upright forked ochraceous ones over the occiput; the flat scales on the genæ very small; eyes deep purplish-black; antennæ with the basal joint bright ochraceous, with numerous black hairs, second joint mostly testaceous, the apex just darkened, the next three or four joints more or less testaceous except at the base, remainder dark brown; clypeus dark brown; palpi long, the apical joint mamilliform, the penultimate moderately long, ante-penultimate a little longer than the penultimate, second about as long as the penultimate, rather enlarged; when denuded, testaceous; covered with ochraceous and brown scales, allowing the testaceous ground colour to show through; apex with very dark brown scales, all the joints with dark bristles. Thorax deep blackish-brown, with broad lines of narrow-curved very pale golden-grey scales and four broad lines of similar bronzy-black scales, with brown bristles, which are more or less golden over the roots of the wings, a bare space in front of the scutellum; scutellum deep brown, with pale golden-grey, narrow-curved scales, rather dense on the mid lobe, with numerous rich golden-brown border-bristles; metanotum deep bright brown; pleuræ deep brown, densely covered with flat greyish-white scales, Abdomen deep brown, the segments mostly covered with pale ochraceous and grey scales, with some dark ones on the middle of the anterior segments, giving a banded appearance; there are also a few white lateral ones; basal on some, median on other segments; venter with pale ochraceous scales, with black-scaled apical borders, the black scales appearing as black apical patches at the sides when viewed dorsally; posterior border-bristles short. Legs brown, ochraceous at the base, and the metatarsi and tarsi basally pale banded, the fore and mid metatarsi with only narrow apical black bands, the tarsi small and with narrow basal pale bands, the pale bands decreasing in size from the first to the last tarsal joint; hind legs with the banding more distinct; all the joints more or less bristly; fore, mid and hind ungues equal, large, uniserrated. Wings with typical deep yellowish-brown Culex scales, the scales on the base of the veins ochraceous and brown; fork-cells very short; first sub-marginal cell longer and about half the width of the second posterior cell, which is very short and broad, its stem equal to nearly two-thirds the length of the cell; stem of the second posterior as long as the cell; posterior cross-vein not quite its own length distant from the mid cross-vein; fringe brown, with rather long dark border-scales; the costal border somewhat yellowish, and the scales of the sub-costal very pale yellow; there is a tinge of brown on the wing field at the cross-veins. Halteres ochraceous-brown, slightly dusky at the knob.

Length, 6 mm.

Found along the seaboard from Port Denison to Gosford in N.S.W. It is a biting mosquito, plentiful at times only; it is recognizable at a glance by the yellowish colour and black marks on the thorax. The males have not been found. Attempts have been repeatedly made to obtain eggs; these mosquitoes, although of a wild nature, will live a few days in confinement, and will oviposit; the eggs are laid singly; they are black, thick set, oval in shape, studded with papillæ; for the most part they never hatched out ; on one occasion some came out, but the larvæ lived only a few days ; examined microscopically, they had the appearance of other mosquito larvæ, so water of some kind is the medium in which they live. I have noted that in glass aquaria young larvæ frequently die mysteriously, and have concluded that the cause was the water getting too cold during the night. Wooden vessels are preferable to glass.

CULEX ALBOANNULATUS.—*Macquart* (1850).

^. Head brown, covered with golden and white scales, the white scales especially in the middle, and a patch of flat white ones on each side ; behind, on each side of the middle line, is a patch of dark brown or black upright forked scales, which also pass forwards ; eyes purplish-black, with silvery lustre ; antennæ dark brown, with faint narrow pale bands, basal joint and base of second joint testaceous ; palpi black scaled with the fourth joint with a ring of white scales at the base and the small apical fifth joint also white scaled ; proboscis dark brown, with a few grey scales towards the base, apex quite black. Thorax deep umber brown, with white and golden scales in the majority of specimens, showing no ornamentation, but when fresh, the white scales are seen to be symmetrically arranged ; a central very narrow bare line runs back to near the scutellum, where it ends in a bare spade-shaped patch, which has two patches of narrow-curved white scales in front, and two of white scales at the base near the scutellum, a small oblique line of pale curved scales on each side in front and traces of two others farther back, and which, according to Skuse, in fresh specimens are hook-shaped, as shown in his figure ; there is also another patch above the root of the wings on each side ; scutellum testaceous brown, with three patches of pale, thin, curved scales ; metanotum deep brown, testaceous at the sides ; pleuræ dark reddish-brown, with patches of white scales. Abdomen covered with deep brown almost black scales, with sometimes pale brown reflections, the bases of the segments each with a patch of white scales, not quite forming a band ; sometimes, according to Skuse, the white scales are entirely absent ; posterior borders and sides with yellowish hairs ; in some specimens there are indistinct white lateral spots, the lateral white spots being centrally disposed ; venter brown, with thick white basal bands. Legs with the femora pale at the base, dark scaled towards the apex ; just before the apex, which is very dark, is a pale or white band, extreme tip yellow to almost white ; tibiæ covered with purplish-black scales with pale hairs ; fore metatarsi with basal pale bands, also the first two tarsal joints, last two with purplish-black scales only ; mid legs the same ; hind legs with their metatarsi and first three tarsal joints very broadly banded with white at the base ; hind metatarsi a little shorter than the tibiæ. Fore, mid and hind ungues equal, toothed.

Wings with the veins covered with dark brown scales, some of which are moderately long ; first sub-marginal cell longer and narrower than the second posterior cell, its stem equal to a little more than half its length ; that of the second posterior cell not quite equal to the length of the cell ; posterior cross-vein nearly twice its own length distant from the mid cross-vein. Halteres with ochraceous stem and pale fuscous knob, sometimes all ochraceous.

Length, 5 to 5.5 mm.

♂. Antennæ light brown, with pale silky brown plumes, basal joint black ; palpi dark brown, with two broad, basal white bands on the second and third joints, and with white ones also to the last two, hairs dark brown, gold and yellowish ; abdominal segments with white basal bands, the last segment often with two white spots ; claspers black ; laterally there are numerous golden hairs, which also occur along the posterior borders of the segments. Fore ungues unequal, the larger uniserrated, the smaller simple.

Length, 5, to 5.5 mm.

This mosquito is occasionally found breeding in wells in Southern Queensland ; only rarely bites ; looks like Culex vigilax, but when critically examined under the microscope it is seen to be distinct ; will live in confinement and oviposit ; the eggs are laid singly, are long oval in shape, black with a silvery meshwork pattern on them. Every few years, at a particular time, fresh water lagoons in the vicinity of Deception Bay are seen to harbour millions upon millions of larvæ of this species ; directly the mosquitoes emerge, they fly off to the South ; it is a plentiful and biting insect in the Southern States.

CULEX RUBITHORAX.—*Macquart* (1850).

♀. Head black, with a narrow border of thin golden curved scales around the eyes, then a broad band of black flat scales, then golden curved ones behind, and a few flat creamy ones at the sides, some golden curved ones also forming a central mass towards the eyes, with dark and golden-brown upright forked scales ; eyes silvery ; antenæ dark brown, basal joint and base of second joint ochraceous ; palpi testaceous at the base, black at the top, with black scales ; proboscis black, the apex and base and down the centre and sides of the mid region with ochraceous and brown scales ; clypeus dark brown. Thorax bright chestnut-brown, with scattered golden curved scales, with four double rows of brown bristles ; scutellum chestnut-brown, with golden scales and brown bristles ; metatonum chestnut-brown, with a purplish patch on each corner of the base ; pleuræ chestnut-brown, with patches of white scales ; prothoracic lobes with flat black scales and black bristles. Abdomen clothed with dusky, purplish-black scales, each segment with a narrow basal band of creamy-white and with white lateral spots, the last segment unmarked, the two preceding with the white spots showing on the dorsum and with very faint basal banding ; each segment with a row of golden bristles on their posterior borders ; venter white scaled, with some apical black scales. Legs with the femora ochraceous, with dusky scales, pale beneath, and a minute yellow knee spot on the hind legs ; tibiæ black, with golden bristles ; fore metatarsi and tarsi black scaled, the former and the first tarsal joint faintly pale at the base ; in the mid legs the basal bands a little more distinct, and a trace on the second tarsal joint ; hind metatarsi and tarsi basally pale banded, metatarsi shorter than the tibiæ ; ungues of the fore and mid legs equal and with a single tooth, hind claws equal and simple. Wings with the veins brown-scaled, except at the roots, where the scales are deep-purplish black ; first sub-marginal cell a little longer and much narrower than the second posterior cell, its stem a little more than half the length of the cell ; stem of the second fork-cell about the same length, not quite so long as the cell ; posterior cross-vein a little more than its own length distant from the mid cross-vein ; lateral scales of the apical portions of the veins long and narrow and blunt at the summit. Halteres pale ochraceous, with slightly fuscous knob.

Length, 5 mm.

This mosquito is never plentiful, yet a few specimens can be obtained any day biting in forest country round about Moreton Bay. It is about the size of Culex vigilax, from which it can be distinguished by its ruddy thorax, and from Culex occidentalis by its smaller size, and from Culex cylindricus by the banded legs. Nothing is known of the life history.

CULEX TIGRIPES.—*Grandpré* (1900).

♀. Head brown, with golden-brown curved scales, and scattered black upright forked ones, with a tuft of orange bristles in front projecting forwards, and other dark bristles laterally. Eyes black, with a silvery lustre over part of their surface ; antennæ dark brown, with basal joint pale testaceous, also the base of the second joint ; a few broad yellowish scales on the second joint ; palpi very dark brown, with a few pale scales internally ; proboscis deep brown to black. Thorax dark brown, covered with reddish-brown curved scales, with three round spots of pale yellowish scales, the front one median and often rather indistinct, the two hinder ones clear, from each there runs backwards a line of pale scales, more or less distinct ; metanotum chestnut-brown ; pleuræ brown, cinereous below, with a few pale scales. Abdomen deep brownish-black (sometimes looking quite black under a lens), with an apical border of creamy scales, which are much the broadest on the last two segments ; posterior borders fringed with golden hairs ; first abdominal segment deep ochraceous, with two patches of dull purplish and yellow scales and with numerous pale hairs. Legs brown, with the coxæ very pallid ;

femora paler below, deep brown above, with a row of yellowish-white spots on one side, knee spot yellowish-white ; tibiæ deep blackish-brown with a row of creamy-white spots on one side with an ochraceous tinge in certain lights ; metatarsi and tarsi almost black ; ungues equal. Wings with the veins clothed with dark scales, costal border and first longitudinal very dark ; posterior cross-vein about half its length distant from the mid cross-vein ; first sub-marginal cell considerably longer and slightly narrower than the second posterior cell ; base of the wings testaceous. Halteres with a pale stem and black knob.

Length, 6.5 to 7 mm ; of proboscis, 3 mm.

♂. Antennæ dark brown, faintly pale banded with dark brown plumes ; palpi longer than the proboscis, dark brown, banded with dull yellow, the apical joint pointed, yellowish at the tip, with a narrow pale band at the base with grey scales ; penultimate joint much shorter, pale at the apex and base, with grey scales on the latter ; the long antepenultimate joint paler, with brown scales, some white ones on the apical half, and a clear pale yellow band lower down, base of the palpi darker brown ; the last two joints, especially the penultimate, with long coarse black hairs. Thorax dark brown, with curved pale scales, the two paler spots being seen, but the median front one invisible ; scutellum with pale creamy scales. Abdomen narrower than in the ♀, with apical yellowish-grey bands of scales and traces of white basal lateral spots, the last two segments with many grey yellowish scales ; genitalia dark brown, densely ornamented with deep reddish-brown hairs ; fore and mid ungues unequal, both uniserrated, deep black, hind ones equal and simple.

Length, 6.5 mm.

Habitat : Durban, Natal (Christophers) ; British Central Africa (Daniels) ; Mombasa (McKay) ; Bonny (Annett) ; Salisbury, Mashonaland (Marshall) ; Queensland (Bancroft).

In Theobald's remarks the following occurs :—It is a very annoying species. Dr. Bancroft has sent a series from Queensland, which exactly agree with the types from Africa ; then again in Vol. III., *i.e.*, 1st. Supplement Monograph of Culicidæ, is the following :—Grandpré described it from Mauritius ; the series from Queensland consists of five ♀'s and seven ♂'s. I can detect no difference in them from those taken in Africa. It is called by Bancroft the "Long-lived Mosquito." Dr. Bancroft writes regarding this species as follows :—" Although to be found all the year round, but always very scarce, it will not bite ; it is possibly out of its proper latitude ; it breeds in fresh-water butts, about houses, and in fresh-water courses ; specimens have been kept alive in confinement for as long as five months."

Additional localities :—Pretoria (Theiler) ; Lagos (Strachan) ; Zomba (Grey) ; Nigeria (Hanley) ; Straits Settlements (Wright) ; Uganda (Low) ; This is the " Long-lived Mosquito," a large black insect often found about houses ; it does not bite either man or animals in South Queensland. It will live up to five months in confinement, but refuses to oviposit. Owing to the shape of the egg raft, which is long, often half an inch, and very narrow, and jet black in colour, there is no difficulty in obtaining the eggs from collections of water near habitations.

The larvæ devour other mosquito larvæ, and also their own species; one larva will kill twenty larvæ its own size in a day; they prefer larvæ to other species to their own, possibly because the latter are harder to catch. If you place an egg raft containing one hundred or so eggs in a glass jar with water, as soon as the larvæ emerge, they commence eating each other, and in two or three days only one larva will remain. They seize the larvæ on the surface of the water generally by the tail, and swallow it tail first; should the victim by its wriggling be able to sink to the bottom, the victor lets go its hold and comes to the surface to catch a fresh one; the victim, however, cannot again rise to the surface to breathe, and very soon dies. Several larvæ will kill, in a few days, in this way, all the larvæ of other species, that may be in a well or water-butt; after that they watch each other all day and night; should one relax its attention for a moment, it will be caught; owing to this awful cannibalism, the species never increases in numbers.

This species might be justly termed a useful mosquito.

The larvæ have peculiarities, which are described as follows by Theobald :—The larvæ is quite different from others of Culex type. It is 10 mm. long, and greyish-brown in colour; the head has large fan organs like a Megarhinus, a truncated clypeus and simple antennæ ending in two spine-like bodies, one broader than the other, and two terminal bristles and two lateral ones near the apex; the head is much smaller than the thorax, and provided with simple hairs only; the eyes prominent. Thorax large, with lateral branched hairs arising from the side of brown conical papillæ. Abdomen composed of nine segments, the first six with lateral plumose hairs arising from brown prominent papillæ, flatter than those of the thorax; seventh segment devoid of the papillæ; the siphon very short, arising from the eighth segment, serrated on its upper edge with long hairs and two rows of short spines on the lower, one row mixed up with the fan of hairs; ninth segment terminates in two long bristles and has about eleven long branched hairs forming the ventral fan; the upper border is serrated. The pupa is about 9 mm. long, with siphons much as in Culex, but the opening is larger and more lateral. The anal fan is peculiar. On the posterior borders of the segments are some branched hairs.

CULEX OCCIDENTALIS.—*Skuse* (1888).

♀. Head brown, with long golden-yellow curved scales in the middle and bordering the eyes, and between them a band on each side reddish-brown in colour, composed of dark curved scales ; the back of the head clothed with golden curved and upright forked scales, a patch of pale creamy flat scales on each side, and then a patch of flat black scales; palpi black scaled, the apex white, and also a ring of white scales at the base of the fourth joint ; antennæ dark brown, with pale pubescence and pale rings, basal joint testaceous with yellow scales, basal half of the second joint also testaceous ; proboscis black ; thorax bright deep reddish-brown, with numerous thin hair-like, curved, golden scales ; scutellum pale testaceous, with golden - yellow scales, paler than on the mesonotum, and long brown bristles to the posterior borders ; metanotum reddish-brown ; pleuræ reddish-brown, with patches of creamy-white scales. Abdomen covered with dusky black scales, each segment with a narrow white basal patch, scarcely to be called a band, somewhat curved and each segment bordered with golden bristles ; there is also a small white basal spot on each side of the segments ; venter covered with creamy-white and dark scales. Legs with the coxæ chestnut-brown, with a few white and black scales ; femora white at the base and beneath, black towards the apex, and mottled at the base above and at the apex below with black and white scales, extreme apex yellow ; tibiæ deep brown to black ; fore metatarsi and first two tarsal joints of the fore and mid legs basally banded yellowish - white, the bands being much more distinct in the mid than in the fore legs, last two joints black ; in the hind legs the metatarsi and the first three tarsal joints have very broad, white, basal bands, the last only being black ; tibiæ with a few golden bristles and a line of smaller pallid hairs ; hind metatarsi about one-third shorter than the hind tibiæ. Ungues of the fore and mid legs thick, equal and uniserrated. Wings longer than the abdomen, the veins very densely covered with brown scales ; testaceous at the base ; first sub-marginal cell longer and narrower than the second posterior cell, its base a little nearer the base of the wing than that of the latter, its stem about two and a half times shorter than the cell; stem of the second posterior cell about one and a half times less ; posterior cross-vein situated about its own length distant from the mid cross-vein and a little longer than the latter ; mid cross-vein almost under the junction of the sub-costal and costal. Halteres ochraceous, with the knob fuscous on one side.

Length, 5 to 6 mm.

♂. Palpi deep brown, with a white basal band to the apical and penultimate joints and a third broad pale band lower down ; hair tufts on the last two joints and on the apex of the antepenultimate pale brown ; apical joint considerably shorter than the penultimate joint. Antennæ with bright brown plume hairs. Proboscis thin, black. Thorax ornamented as in the ♀ ; Abdomen with distinct basal white bands. Legs banded as in the ♀, but the femora mottled with yellow instead of white scales ; fore and mid ungues unequal, both uniserrated ; hind equal, thick, uniserrated.

Length, 5.5 mm.

Habitat : King George's Sound, Western Australia (Masters) ; Healesville, Victoria (Bancroft) ; Somerville, Victoria (Froggatt) ; South Queensland (Bancroft) ; Mt. Victoria, N. S. Wales (Bancroft).

A common biting mosquito in New South Wales and Victoria ; uncommon in Southern Queensland ; it is rather a handsome species, not unlike Culex rubithorax but larger, and with more pronounced banding of the legs. I bred it from mixed larvæ obtained from wells at Deception Bay ; it also occurs in association with the larvæ of Scutomyia in crevices of scrub trees, holding a little water, on Kedron Brook. Oviposits in confinement ; eggs laid singly, long oval, black, with silvery meshwork pattern.

CULEX VIGILAX.—*Skuse* (1888).

♀. Length of antennæ,	2.27 mm.
Expanse of wings,	4.31 x 1.27.
Size of body,	5.08 x 1.13.

Antennæ dark brown, three-quarters the length of the proboscis ; joints of the scapus more or less ochraceous-brown or ochraceous. Head covered with dark brown scales, indistinctly mottled with yellow scales. Proboscis about seven times the length of the palpi, very dark brown or black, ochreous-yellow beneath from just beyond the base to a little beyond the middle. Palpi dark brown, the last joint with white scales at the apex. Thorax very deep brown or black, densely covered with deep brown or black scales, mottled with small patches of golden-yellow scales ; pleuræ very deep brown, spotted with a few small patches of white scales ; scutellum deep brown, sometimes tinged with testaceous, with golden-yellow scales and setæ ; metanotum deep brown, nearly black, more or less testaceous at the sides. Halteres entirely ochre-yellow. Abdomen scarcely twice the length of the thorax, covered with violet-black scales, each segment except the first bordered anteriorly with a narrow band of very pale yellowish or whitish scales, the first segment set with numerous golden-yellow setæ and sprinkled with white scales ; all segments with a small patch of pure white scales laterally below the extremities of the anterior bands ; venter covered with very pale yellowish or whitish scales ; lamellæ of the ovipositor deep brown. Coxæ light brown, with white scales. Femora violet-black above and at the apex, sprinkled with yellowish or whitish, beneath yellowish or whitish, nearly wholly violet-black in the fore legs ; genua bright golden-yellow. Tibiæ violet-black sprinkled with yellowish scales. Tarsi violet-black, each joint with a narrow ring of white at the base, rather indistinct on the last two joints of the fore and intermediate legs. In the hind legs the metatarsus rather more than two-thirds the length of the tibiæ. Wings longer than the abdomen, hyaline, with a pale yellowish tint anteriorly, veins covered with slender brown scales, cilia grey; rather brilliant reflections. Auxiliary vein joining the costa a little before the posterior branch of the fifth longitudinal fork; middle cross-vein longer than the posterior cross-vein, situated a short distance in front of the former; first sub-marginal cell somewhat longer and slightly narrower than the second posterior cell, the base of the former situated a little beyond the base of the latter; anterior branch of the fifth longitudinal vein originating opposite a point about mid-way between the origin of the second longitudinal and the tip of the sixth longitudinal vein, joining the posterior border opposite the middle of the second posterior cell.

♂. Head black, with pale golden curved scales and black and brown narrow upright forked ones, sides densely covered with flat white scales. Antennæ banded, plumes silky-brown and dull yellow, the top joints of the antennæ dark; proboscis dark brown, quite black towards the tip; palpi almost black, the penultimate joint and apex of the antepenultimate swollen, the apical joint thinner, faint basal pale bands on the last two joints, hair-tufts yellow. Abdomen with basal white bands, the last segment unbanded, but with a few white scales, the antepenultimate with the basal band expanded laterally, and with yellow apical scales; densely golden haired. Ungues of fore feet unequal, the larger one with two teeth, the smaller with one; hind ungues equal, each with a single tooth.

Length, 4.8 to 5 mm.

This is the "Black Bush-Mosquito," a most plentiful species everywhere in Southern Queensland, along the sea coast, more especially; it bites all the year round, both by day and night, and the bite is very painful; it sometimes occurs in millions; it does not come into the house, which is about all that can be said favourably of it. It lays its eggs singly in salt water swamps and pools of sea water that are left behind after high spring tides and king tides; the water in such pools becomes concentrated by evaporation, often up to a specific gravity of 1,060, but the larvæ are uninjured; small fish, if any, die before the water reaches a specific gravity of 1,040. Larvæ have been found in fresh-water creeks a few miles inland from the sea, but not in plentiful numbers. This mosquito prefers salt water. It can be told at a glance by its black colour and white banded legs. It extends into New South Wales (Skuse); specimens have been sent from the Johnstone River by Mr. A. Owen Jones and Mr. Edgar H. Webb.

CULEX ANNULIROSTRIS.—*Skuse* (1888).

♀. Length of antennæ,	2.27 millimetres.
Expanse of wings,	3.81 x 0.88.
Size of body,	4.31 x 0.88.

Antennæ brown, the length of the proboscis ; first joint of the scapus and basal half of the second joint testaceous. Head deep brown, nearly black with yellow scales. Proboscis deep brown, nearly six times the length of the palpi, with a prominent broad ring of white in the middle one-third the length of the proboscis. Palpi black or deep brown, the third and last joints almost imperceptibly tipped with white. Thorax deep brown, rather densely covered with yellow scales and hairs ; pleuræ deep brown, spotted with a few small patches of white scales ; a little testaceous under the origin of the wings ; scutellum somewhat testaceous-brown, with long yellow hairs ; metanotum deep brown. Halteres brownish-ochraceous. Abdomen twice the length of the thorax, deep brown, nearly fuliginous ; each segment bordered anteriorly with a narrow band of white scales and fringed posteriorly with golden-yellow hairs ; underneath covered with white scales. Coxæ reddish-brown, with white scales. Femora deep brown above, white beneath (in the fore and intermediate pairs the brown predominates), and just perceptibly white at the extreme apex ; tibiæ and tarsi sordid brown, with a yellowish-grey reflection, all joints, except the last tarsal joint, with a small ring of white at the base. In the hind-legs the metatarsi equal in length to the tibiæ. Wings longer than the abdomen, hyaline, the veins thickly covered with brown scales, chiefly long and very slender, cilia brownish-grey. Auxiliary vein reaching the costa about opposite the tip of the posterior branch of the fifth longitudinal vein ; middle and posterior cross-veins very pale, the former a little shorter than the latter and situated in front of it a distance equal to twice its length ; first sub-marginal cell a little longer and distinctly narrower than the second posterior cell, its base situated almost opposite but slightly beyond the base of the latter ; anterior branch of the fifth longitudinal vein originating at a point about mid-way between the origin of the second longitudinal and the tip of the sixth longitudinal, joining the margin opposite the middle of the second posterior cell.

♂. Head with creamy upright forked scales on each side in front, dusky ones behind, a bare line in the middle ; grey and brown flat scales at the sides ; antennæ brown, with pale bands and dark silky-brown plumes ; palpi dark brown, with two broad basal pale bands and two narrow ones to the apical joints, the one broad band corresponds in position with the proboscis band ; proboscis banded in the middle, expanded towards the apex, which darkens and then becomes paler, not so long as the palpi ; ungues of fore and mid legs unequal, both serrated, the smaller with a minute tooth ; hind ones equal and simple. Wings with rather blunter and broader lateral scales to the veins than in the ♀ ; both fork-cells short, the base of the second posterior cell nearer the base of the wing than that of the first sub-marginal cell ; stem of the latter equal to the length of the cell ; stem of the second posterior not quite so long as the cell ; posterior cross-vein nearly twice its own length distant from the mid cross-vein and somewhat longer.

Length, 4 to 4.5 mm.

Mr. Theobald makes a sub-species, but I do not think it will hold, as there is great variation in the scale ornamentation in this extremely plentiful insect.

Habitat : N.S. Wales (Masters and Skuse), Southern Queensland (Bancroft).

This is another extremely plentiful and annoying mosquito, biting by day and night ; found along the sea-coast, in association with Culex vigilax, from which it is easily recognised by the banded proboscis and black legs. It comes into the house ; will live well in confinement for a month or more ; oviposits in a boat-shaped raft similar in appearance to that of Culex fatigans. A mosquito raft on salt water will turn out to be this species. It breeds in sea-water, and fresh-water lagoons and wells. This species and Culex vigilax are the most troublesome and abundant native mosquitoes in Southern Queensland. It will, under exceedingly favourable conditions, occasionally act as host for the dog filaria.

CULEX PSEUDOMELANOCONIA.—*Theobald* (1907).

♀. Head deep brown, with narrow-curved golden-brown scales in the middle, flat grey ones at the sides, with ochreous upright forked scales at the middle, dark ones at the sides, and flat grey ones laterally. Proboscis and palpi dark brown. Antennæ and clypeus deep brown. Thorax deep brown with narrow-curved golden scales, somewhat smaller over the humeral area, with two median bare lines showing as two dark areas ; bristles brown, somewhat golden apically ; scutellum brown, with golden narrow-curved scales ; metanotum deep brown ; pleuræ greyish-brown to brown. Abdomen deep blackish-brown with golden-brown lateral and posterior border-bristles ; venter pale scaled. Legs deep brown with violet reflections, bases of the femora pale, ungues small, equal and simple. Wings with typical deep brown Culex scales, dense on the apical portions of the veins ; the first sub-marginal cell much longer and slightly narrower than the second posterior cell, its base much nearer the base of the wing, its stem a little less than half the length of the cell ; stem of the second posterior nearly as long as the cell ; the posterior cross-vein much shorter than the mid, about twice its own length distant from it, the mid cross-vein the largest of the three.

Length, 3 mm.

Time of capture : November.

Habitat : South Queensland.

I found this mosquito in Harris's scrub at Burpengary ; biting ; the larvæ have not been met with ; it is a perfect mystery where some mosquitoes breed ; it may not be in water at all ; possibly in damp soil, or in rotten wet wood.

Mosquito larvæ have been found by Mr. E. E. Green, in the flowers of Heliconia brasiliensis ; by Dr. Leicester in Bamboos, the female mosquito having entered through the holes made by boring insects. They have been observed also in Pitcher Plants, Bromelias, etc. D. W. Coquillett says Dendromyia smithii breeds in the leaves of Orchidaceous plants growing on trees. Dr. Low found the larvæ of Deinocerites cancer in crab-holes.

CULEX BURPENGARYENSIS.—*Theobald* (1905).

♀. Head deep brown, clothed with long narrow-curved pale golden scales and flat yellowish ones laterally, the upright forked scales ochreous ; palpi and proboscis brown ; clypeus bright brown, with a median sulcus and a blunt process on each side towards the base ; the palpi are clothed with almost black scales and bristles, the apical segment minute, the penultimate long. Antennæ brown, basal segments bright testaceous. Eyes black and silvery. Thorax deep brownish-black, clothed with irregularly disposed golden narrow-curved scales except on two median parallel lines, which show as two dark lines on the golden-scaled mesonotum, and which are ornamented with the narrow-curved bronzy-black scales, a few of these also occur over the roots of the wings ; bristles partly black, partly golden. Scutellum ochreous brown, with pale golden narrow-curved scales, the mid lobe with deep brown and golden border-bristles, the lateral with deep brown ones only ; metanotum brown and testaceous ; pleuræ testaceous and brown, with flat creamy scales. Abdomen deep brown in some lights, with violet reflections in others, the segments with basal lateral creamy patches, the basal segment testaceous with two patches of dark scales ; posterior border-bristles bright reddish-brown. Venter with yellowish basal bands. Legs brown with metallic violet and coppery hues, base and under side of femora ochreous ; fore and mid ungues equal, uniserrated, thick, hind equal and simple, straighter than the others. Wings with short fork-cells, first sub-marginal a little longer and narrower than the second posterior, their bases nearly level, its stem not quite so long as the cell, stem of the second posterior as long as the cell, posterior cross-vein about its own length distant from the mid, which is longer than the posterior ; scales brown. Halteres with pale stem, fuscous knob with creamy scales.

Length, 5.2 to 5.5 mm.

♂. Palpi deep brown, hair tufts deep brown; antennæ with deep brown plume-hairs. Head and thorax as in the female; pro-thoracic lobes prominent. Abdomen as in the female, but the basal parts of the segments are unscaled and testaceous, giving a broadly banded appearance. The first sub-marginal cell is only about half the width of the second posterior cell and about the same length, its stem the same length as the cell, whilst that of the second posterior is shorter. Ungues of fore legs curved, unequal, the larger uniserrated, the smaller simple; in the mid more unequal than the fore, the smaller curved and uniserrated, the larger simple, bent close to the base, then nearly straight; hind pair equal, simple, small and nearly straight, acuminate. Male genitalia with prominent claspers.

Length, 5 to 5.5 mm.

(Observations.—Described from a series of males and females collected by Dr. Bancroft, at Burpengary, S. Queensland. No other known Australian species has a similar abdomen. It cannot be confused with any other species. The male ungues are very marked. It clearly comes in Felt's new genus Culicada). I bred out these mosquitoes from mixed larvæ, obtained in a well in the Burpengary scrub. Eggs and larvæ, and whether the mosquito will bite were not observed.

CULEX PROCAX.—*Skuse* (1888).

♀. Head black, with a few pale curved silvery scales in front and the middle, and with broad flat white scales forming lateral patches, with a few broad dark scales at the sides as well forming a small dark spot; antennæ very dark brown, with narrow pale bands; palpi black scaled with a few grey ones; proboscis deep ochraceous, broadly black at the tip and at the base. Thorax black, with a few brownish-black and dull golden curved scales; scutellum brown; metanotum deep brown; pleuræ deep umber brown, with a few white scales. Abdomen black scaled, with narrow basal bands of white scales; venter black, with a few white scales. Legs dark brown, with the undersides of the femora pale; tibiæ brown, with a yellowish reflection in certain lights; metatarsi basally pale banded; first three tarsi of the mid and all four of the hind legs basally white ringed; ungues equal and simple. Wings with brown scales, the lateral ones long, costa dark brown; first sub-marginal cell short, much narrower and a little longer than the second posterior cell; their bases opposite; their stems nearly equal; mid cross-vein a little longer than the posterior cross-vein, situated from it about its own length distant; fringe grey. Halteres ochraceous.

Length, 3.8 to 4.5 mm.

Habitat: Gosford and South Clifton, N.S.W. (Skuse); Burpengary, S. Queensland (Bancroft).

Skuse says it is a day-flying species. Theobald remarks, "that it is the smallest known Australian Culex. The two clear white spots, one on each side of the head, and its small size, seem to be the most characteristic features."

It is a rare and obscure species; looks like Culex rubithorax but when examined, under the microscope, it is seen to be a distinct species. I bred them from larvæ obtained from a water-hole after rains at Deception Bay. Since the females were sent to the British Museum, I bred out males. but the male has not so far been described.

The eggs and larvæ, and whether it is a biting mosquito, have yet to be observed.

CULEX CYLINDRICUS.—*Theobald* (1903).

♀. Head brown, clothed in the middle with narrow-curved dull yellow scales, black at the sides and with a few flat white scales laterally, numerous narrow upright forked scales of a pale brown hue; palpi densely scaled with dark brown scales, with some long brown hairs; antennæ brown; proboscis black, expanded apically. Thorax dark brown, when denuded, clothed with silky dull golden narrow-curved scales, and with two lateral rows of black bristles, numerous black bristles over the roots of the wings; scutellum pale brown (almost testaceous when denuded) with narrow-curved pale scales and dark brown border-bristles, six large ones to the mid lobe and a posterior row of several very fine hairs; pleuræ slaty-grey and brown or bright brown with a few brown bristles and white scales. Metanotum deep brown. Abdomen narrow, cylindrical, slightly expanded apically and truncated, black, covered with black scales, the second to seventh segments with basal white bands, the scales rather more numerous in the middle of the segments, thus giving the bands a curved outline; first segment testaceous with two median patches of dusky scales and numerous long brown hairs, apical segment black, bristly; the antepenultimate segment rather expanded apically. Legs with pale brown coxæ and trochanters almost grey in some specimens, testaceous in others; remainder of legs deep brown, almost black, with bristles on the tibiæ and metatarsi; hind metatarsi about the same length as the hind tibiæ; ungues very small, equal and simple. Wings with typical Culex scales; scales brown; fork-cells rather short; the first sub-marginal cell longer and slightly narrower than the second posterior cell, its base just a little nearer the base of the wing than that of the second posterior cell or level with it; its stem about half the length of the cell; stem of the second posterior cell nearly two-thirds the length of the cell; posterior cross-vein longer than the mid cross-vein, about twice its own length distant from the mid; the scales on the sub-costal and first longitudinal are broader and denser than on the rest of the veins. Halteres with yellowish stem and fuscous knob."

Length, 4 to 4.3 mm.

♂. Palpi brown unbanded, the last two joints with scanty brown hairs on both sides, the two apical joints being darker than the remainder of the palpi ; antennæ banded brown and white, with flaxen brown plumes ; proboscis black, expanded apically ; thorax as in the ♀ ; abdomen not so cylindrical as the ♀, slightly expanded apically, with six basal white bands as in the ♀, apical segment black ; segments with pale brown hairs laterally ; in certain lights the abdomen has a violet hue ; apical segment truncated and bristly as in the ♀ ; posterior border-bristles rich brown, shorter in the middle than at the sides ; genitalia with a spine-like process near the apex of the claspers ; the lateral process of the basal lobe spined, with an apical tuft of bristles, a broad sword-like plate and two long chitinous processes curved at their apices. Legs dark brown to black unbanded ; fore ungues unequal, the larger not very long, rather thick, uniserrated, curved ; the smaller more or less straight, curved at the tip, with a small tooth towards its base ; mid ungues very unequal, the larger curved, acute, simple, the smaller rather more than half its length, straighter, and with a very small tooth near the base ; hind ungues very small, equal, sickle-shaped and simple.

Length, 4 to 4.5 mm.

This is a small brown biting mosquito, common in South Queensland in scrubby places, but never very plentiful ; it can be recognised when alive at once by the position of the hindmost pair of legs, which are always cocked up and bent forwards as far as the head. When the specimens are dry, it much resembles starved Culex fatigans, and can only be separated by critical examination under the microscope. The larvæ are found in small collections of water in scrubs ; they have a very long respiratory siphon. It oviposits in a small boat-shaped raft easily recognised by its small size from that of Culex fatigans.

CULEX LINEALIS.—*Skuse* (1888).

♀.	Length of antennæ,	0.095 inch	......2.39 millimetres
	Expanse of wings,	0.160 x 0.045	....4.06 x 1.13
	Size of body,	0.200 x 0.040	....5.08 x 1.01.

Antennæ brown, about five-sixths the length of the proboscis ; first joint of the scapus dull reddish-brown, with yellow scales. Head brown, densely covered with golden-yellow scales and hairs. Proboscis uniformly covered with violet-black scales, about six times the length of the palpi. Palpi uniformly covered with violet-black scales. Thorax brown, with four distinct lines of golden-yellow scales, and densely bordered laterally with golden-yellow scales ; interstices of the lines bare or nearly so ; two median lines running parallel, and rather close together, from the anterior border for two-thirds the length of the thorax, at this point apparently coalescent, but proceeding to the scutellum in a slightly wider fork, the branches being parallel ; the other two lines starting below the anterior border, running parallel and continuing to the scutellum, and lying somewhat nearer to the median lines than to the lateral border of scales ; pleuræ brown, with a few somewhat indistinct patches of white scales and a small tuft of moderately long white hairs under the origin of the wings ; scutellum brown, with two lines of golden-yellow scales, coalescent at the apex, and appearing as a continuation of the two median lines of the thorax ; beset with long golden-yellow hairs ; metanotum brown. Halteres ochre-yellow. Abdomen not quite twice the length of the thorax, superior segments covered with violet-black scales, each segment bordered anteriorly with a very narrow band of ochre-yellow ; venter ochre-yellow, each segment bordered posteriorly with a moderately narrow band of violet - brown or violet black. Coxæ and femora ochre-yellow, the latter more or less covered along the upper side and at the tip with violet-black scales, the extreme apex of the femora ochre-yellow ; tibiæ and tarsi violet-black or violet-brown, the former with a more or less distinct line of ochre-yellow on the sides and slightly ochre-yellow at the extreme apex, and the first two joints of the tarsi very slightly and indistinctly ochre-yellow at the base. In the hind-legs the tibiæ about one-third longer than the metatarsi. Wings longer than the abdomen, hyaline, the veins densely covered with violet-brown scales. Auxiliary vein joining the costa opposite the middle cross-vein and a little before the tip of the posterior branch of the fork of the fifth longitudinal ; middle cross-vein rather indistinct, longer than the posterior cross-vein situated beyond it a distance twice the length of the latter ; first sub-marginal cell scarcely longer than the second posterior cell, considerably narrower, its base lying a short distance beyond that of the latter ; anterior branch of the fifth longitudinal vein originating opposite a point mid-way between the origin of the second longitudinal vein and the tip of the sixth longitudinal. reaching the posterior border opposite the middle of the second posterior cell.

Habitat : Knapsack Gully, Blue Mountains ; Hexham and Wheeny Creek, N.S.W. (Skuse), October and January ; Enoggera, South Queensland (Bancroft).

This is a rather uncommon species, biting in scrubby places on Kedron Brook, Enoggera. Specimens were submitted to Mr. Theobald, who is of opinion, that they are examples of Skuse's Culex linealis ; although the two median golden-scaled lines on the thorax do not meet in the middle, as described by Skuse ; in every other particular the description tallies. Mr. Theobald suggests that a specimen be compared with Skuse's type in Sydney.

It oviposits in confinement, the eggs being laid in a raft; I succeeded in hatching out a number, but for some mysterious reason the larvæ died. The male of this species has not been seen.

TÆNIORHYNCHUS —ARRIBALZAGA (1899)

Palpi long in the ♂, short in the ♀; the fifth joint in the ♀ minute, buried in scales; ♂ palpi longer than the proboscis, third joint long; head clothed with narrow-curved scales and upright forked ones; thorax and scutellum with narrow-curved scales; abdomen with flat scales; wings clothed with thick elongated scales, ending either diagonally and convexly, or more or less bluntly pointed, median linear scales to the veins often absent; legs usually spotted or banded; ungues of female equal and simple, of the male unequal in the fore and mid legs, the larger one with one or two teeth, the smaller simple, the hind claws also simple; wings with similar venation to Culex; the proboscis is usually banded.

TÆNIORHYNCHUS ACER.—*Walker.*

♀. Head brown, with testaceous scales, a pale border round the eyes above, with some black and yellowish bristles; eyes black; basal joint of the antennæ yellowish, remainder brown; palpi dark yellowish-brown; proboscis covered with dark black scales with a very dark purplish reflection. Thorax golden-yellow, the front scales being very bright and metallic; scutellum bordered with long yellow bristles; metanotum testaceous, pleuræ pale testaceous, with some bright reflections and a dark area beneath the root of the wings. There are traces of brown markings on the thorax, which cannot be made out. The abdomen brilliant orange-yellow, the first four segments apically banded with metallic purple, the other segments showing traces of the metallic banding (probably rubbed), clothed with orange-yellow hairs, densely so at the apex, venter similarly marked to the dorsum. Wings testaceous at the base, veins densely clothed with longish brown scales, costa and first longitudinal very dark brown scaled; base of the second posterior cell nearer the base of the wing than the base of first sub-marginal cell. Halteres testaceous with dusky knob. Legs with coxæ orange-yellow, femora orange-yellow at the base, apically metallic black, rest of legs clothed with metallic black scales showing purplish and slight golden reflections—general appearance of legs dark metallic black.

Length, 5 mm.

♂. Head with pale greyish scales, a dark line running down the middle; palpi as long as the proboscis, dark brown at the tip, paler basally, with a small pale band about one-third of the length from the base; proboscis dark brown, slightly paler towards the tip ; antennæ banded brown and white, with yellowish-brown verticils. Thorax bright testaceous, with long bristles, dark in some lights, yellowish in others. Abdomen similar to female, but the apex and genitalia deep brown. Legs as in ♀, but the femora are darker. Wings rather paler.

Length, 5 to 5.5 mm.

"The Golden Mosquito," a biting species, coming into the house, common at times of the year only (January, February, March), but never plentiful ; absent for long periods at a time ; this mosquito was rarely seen at Burpengary ; its breeding place has not been ascertained ; it will live in confinement and will oviposit ; the eggs are laid in a boat-shaped raft like those of Culex fatigans ; a number once hatched out, but, unfortunately, the larvæ died when three days old from some unknown cause, from possibly the water getting too cold during the night. I tried salt water, but no eggs hatched out.

Theobald now proposes to place Tæniorhynchus acer, in Goeldi's new genus Chrysoconops.

CHRYSOCONOPS.—Goeldi (1905).

The head, thorax and abdomen scaled as in Culex. Colours golden-yellow and metallic violet. Large species. Male palpi long, acuminate, dense hair-tufts. Male genitalia with short basal lobes and broad claspers with short acuminate terminal segment, harpogones stout and curved with thick spines. The wing scales dense and Tæniorhynchus-like, but the majority end asymmetrically.

MANSONIA.—Blanchard (1901).

Palpi short in the ♀, long in the ♂, in the latter with hair tufts, four-jointed in the ♀ and ♂ ; in the ♀ the first joint is small, the third long, the fourth small and nipple-like. Head clothed with narrow-curved and long upright forked scales ; thorax with thin hair-like curved scales and numerous bristles ; scutellum with similar squamæ ; abdomen with flat scales with very convex apices. The abdomen of the ♀ is usually blunt, and the penultimate segment may have a row of short thick spines. Wings densely scaled along the veins with broad asymmetrical flat scales on each side of the veins only, no median scales, and also in some cases with long lateral clavate scales ; fork of the second posterior cell usually nearer the base of the wing than that of the first sub-marginal cell. Legs usually more or less mottled and banded with white ; ungues of the ♀ equal and simple, of the ♂ unequal, the larger one toothed, the smaller simple.

Mansonia uniformis.—*Theobald* (1901).

♀. Head purplish-brown, with curved white scales and black upright forked ones, slightly ochraceous at the sides ; eyes purple and white, with a border of white scales ; antennæ brown, basal joint bright yellowish, and also the base of the next joint, remainder faintly banded; palpi yellowish, with a few blackish scales; proboscis ochraceous, with a broad black band near the apex, tip yellowish, and a few black scales at the base. Thorax brown, with a purplish-brown tinge, covered with golden-brown scales in the centre, more or less arranged in rows, on each side a broad stripe of whitish scales, a patch of similarly coloured ones posteriorly; sides of the mesonotum with golden scales, and on each side, towards the scutellum, a large roundish bare dark spot (this does not always appear prominently); scutellum chestnut-brown with purplish-brown reflections, with scattered white scales and a border of bright brown bristles, seven bristles on the mid lobe and five on each side; metanotum brown; pleuræ with two patches of white scales. Abdomen covered with dark purplish-brown scales, with patches of white and yellow scales laterally, the white on the posterior border of the segments; a few ochraceous patches on the dorsum; posterior borders paler, with golden hairs, the last few segments when denuded testaceous; venter with white and ochraceous scales on a dark ground. Legs with the femora yellowish, mottled with dark scales and patches of white, no distinct banding; anterior tibiæ dark in front, with about seven white spots; posterior tibiæ with five white and six dark bars in front, yellowish beneath; metatarsi of all the legs pale at the base and banded white in the middle; the first two tarsal joints of the fore and mid legs basally white; all basally banded in the hind legs; ungues simple. Wings mottled with dusky and pale creamy broad scales; posterior border with dark and light basal scales; border scales small; fringe dark; posterior cross-vein about twice its own length distant from the mid cross-vein; the base of the fork of the second posterior cell slightly nearer the base of the wing than that of the first sub-marginal; the cells of about equal width, the latter slightly the longer. Halteres with a pale stem and dark knob.

Length, 4.5 to 5 mm.

Habitat: Travancore, S. India (S. P. James); Taiping, Perak (Wray); South Queensland (Bancroft); Central Africa (Moffat, Gray and others); Lagos (Strachan); Ceylon (E. E. Green); Algeria (Chaudoye); Natal (Moir). One of the most abundant Central African Culices, occurring in numbers around the Albert and Victoria Nyanzas. It is the most common form at Entebbe and along the lake-shore in Uganda and Busoga, writes Dr. Low. It occurs in swamp and forest, and according to Dr. Moffatt, bites there severely. In Natal it is most troublesome during rains (Moir).

New localities: Philippine Islands (Miss Ludlow); New Guinea (Biró); Ivory Coast (Blanchard and Dye); Madagascar, (Ventrillon and Blanchard).

This is the brown mosquito, common but never plentiful in the vicinity of swamps and creeks on Moreton Bay ; a large insect but smaller than Mucidus alternans, the "Scotch Grey," with which it is associated ; it is met with in open forest country, and not in scrub or jungle ; at times and often for long periods it is very scarce. The eggs, larvæ and males have never been met with. Several attempts to keep them in confinement with the hope that they would oviposit ended in failure ; they are of a wild nature and do not live long when caged. It is a very handsome insect under the microscope ; the wing scales being especially beautiful.

FINLAYA.—Theobald (1903).

Head clothed with flat scales, broad curved scales and numerous narrow upright forked ones, and long forwardly-projecting bristles ; the broad curved scales border the eyes, and form a median line ; the flat scales not so closely applied as in Stegomyia. Eyes with facets very large and pronounced ; antennæ with the basal and second joint scaly, fifteen jointed in the ♀ ; palpi densely scaly, apparently four-jointed. Mesothorax with narrow-curved scales ; prothoracic lobes with flat scales ; scutellum with flat scales and a basal row of narrow-curved ones. Abdomen densely clothed with flat scales, the apical segments with ventral scaly tufts. Legs with the femora with rather prominent scaly tufts ; ungues equal and simple. Wings spotted with light and dark scales ; scales large and broad, more or less pyriform in shape.

Finlaya poicilia.—*Theobald* (1903).

♀. Head black, covered at the sides and on the occiput with flat black scales grey at the sides, the central area with broad silvery grey scales and the eyes bordered with the same, a few upright black narrow forked scales dotted over the occiput. Antennæ dark brown, basal joint with silvery white scales on the inside, the second joint densely clothed with black scales ; palpi prominent, deep black, with silvery white scales at the apex ; proboscis black, with a clear white band at the base of the apical half and a trace of white banding at the apex. Mesothorax black, with narrow-curved dull grey and white scales, and patches of flat, silvery white scales at the sides in front of the wings ; prothoracic lobes covered with flat white scales ; scutellum covered with flat, rather pyriform black and white scales on the middle lobe and with black ones on the lateral lobes, the base of the scutellum with silvery white narrow-curved scales, median lobe with four border-bristles ; pleuræ blackish-brown to almost black, with silvery white puncta. Abdomen black, each segment with two median white spots, the last two segments mainly grey scaled ; there are also median white lateral spots ; the apical segments with three prominent ventral tufts of black scales. Legs black, the femora with five snow-white bands, the tibiæ with six similar bands, metatarsi apically and basally white banded and with a median white band ; the first fore tarsus apically white, next two black, last pure white ; in the mid legs the same ; in the hind legs two tarsi with white bands, the last pure white ; ungues small, equal and simple. Wings clothed with large, broad, pyriform, black and white scales, the costal with two small apical, then two large and then another small white spot ; the veins mostly covered with black scales, but with white areas as follows : At the base of the fork cells, small areas on their branches, four on the third long vein ; two on the upper, two on the lower branch of the fifth, and three on the stem, the basal portion being white ; four small white areas on the sixth ; fringe black, with white spots where the veins join the border ; border-scales all black ; first sub-marginal cell a little longer, but about the same width as the second posterior cell ; bases of the two fork-cells about level, stem of the first sub-marginal not quite as long as the cell, stem of the second posterior as long as the cell ; posterior cross-vein nearly four times its own length distant from the mid cross-vein. Halteres black.

Length, 4.5 mm.

Habitat : Penang (Freer) ; The Johnstone River, North Queensland (A. Owen Jones and Edgar H. Webb) ; Kedron Brook, S. Queensland (Bancroft) ; New Guinea (Birò).

This is a small biting mosquito common at the Johnstone River ; rare in the vicinity of Brisbane. It can be told at sight by the banded legs and proboscis and variegated wings ; the only mosquito it resembles are starved specimens of Scutomyia notoscripta, with which it is associated in scrubs.

Nothing is at present known of the life-history.

SKUSEA.—Theobald (1903).

Head with flat scales all over ; scutellar scales narrow and curved. Metanotum nude. Branches of the first sub-marginal cell with denser scales than the rest of the veins, thick, like those of Verrallina, also those on the branches of the second fork-cell and its stem ; scales on the basal areas of the veins thick. Palpi of the ♀ three-jointed, longer than in Verrallina. Scutellum with six border-bristles to the mid lobe. Male palpi short composed of three segments, the apical one small and nipple-like. The second segment of the antennæ slightly swollen, plumose. Genitalia with short, thick, blunt claspers ; basal lobes broad and short, a large median semi-circular process between them at the base and two sword-like harpes, curved at the base.

SKUSEA FUNEREA.—*Theobald* (1903).

♀. Head covered with flat black scales, with violet reflections; palpi, clypeus and proboscis black, palpi short, scaly and bristly; antennæ dark brown, basal joint dark, nude, second joint testaceous at the base. Thorax black, with long curved hair-like bronzy scales and numerous black bristles, which are dense over the roots of the wings; there are also median and lateral rows on the mesothorax; scutellum dark brown, with narrow, pale, dull golden curved scales and numerous dark border bristles; metanotum black; pleuræ black, bristly, with patches of white scales, three prominent. Abdomen with peculiar ornamentation, deep brown, banded with black and white; first segment entirely deep brown, with violet reflections, second segment deep brown, a few white scales in the middle close to the base, but not basal, lateral white spots not quite basal; in the third, fourth, fifth and sixth segments the bases are banded with darker brown, almost black, and then follows an irregular white band, which spreads out laterally to form distinct lateral white spots, seventh segment with lateral white spots only, apex black; the whole abdomen shows violet reflections in some lights; posterior border-bristles pale dusky brown; venter also with white bands on the basal half of the segments. Legs dark brown to black, coxæ and bases and venter of femora pale; fore, mid and hind ungues equal and simple, the fore rather straighter than the mid; legs rather bristly, femora somewhat enlarged. Wings with veins brown scaled, the upper border dark, slightly smoky; fork-cells rather short; first sub-marginal cell longer, but no narrower than the second posterior cell, its base a little nearer the base of the wing, its stem about half the length of the cell; stem of the second posterior cell about as long as the cell; posterior cross-vein from one to one and a-half times its own length distant from the mid cross-vein. Halteres with pale stem and fuscous knob.

Length, 4 mm.

Habitat: South Queensland (Bancroft); New Guinea (Biró).

This is a small very black mosquito found biting in Mrs. Bell's scrub at Deception Bay; present throughout the year but always rather uncommon; it oviposits in confinement; the eggs are laid singly; they are very long, narrow oval in shape, black with a pattern. As a rule, they were not fertile, several once hatched out but unfortunately, for some reason or other, the larvæ died when a day or so old.

URANOTÆNIA.—ARRIBALZAGA (1889).

Closely related to Ædes, but usually more brilliantly coloured and stouter in form.

Palpi two-jointed, short in both male and female. Head clothed with flat scales, forked upright ones may or may not be present; antennæ fourteen-jointed, pilose in the female, plumose in the male ; proboscis swollen at the apex, with hairs along the apical portion, especially prevalent in the male. Thorax clothed with narrow-curved scales, and rows and patches of flat scales ; scutellum with flat scales on the mid or lateral lobes, or both. Abdomen densely clothed with flat scales, either banded or unbanded. Wings with very small fork-cells, with the veins clothed with single or double rows of small broad equilateral scales, abruptly truncated and with lateral clavate or elliptical scales to some of the veins ; on the roots of the wings are usually some flat scales of more or less brilliant hue ; costal borders with lanceloate scales projecting from the edge ; first sub-marginal cell small, smaller than the second posterior cell, its base considerably near the apex ot the wing than the base of the latter cell, its stem long, and its upper branch more or less closely applied to the first longitudinal vein ; the sixth long vein curves at the apex, and the incrassation in the anal cell is distinct, almost appearing as a true vein. The ungues of the female are simple and equal, whilst those of the male are unequal on the fore and mid legs.

Dr. Lutz, of Brazil, says the larvæ are like Anopheles, but lie slightly obliquely in the water ; they are often brilliantly coloured red, blue and green, and have a short respiratory tube.

URANOTÆNIA PYGMÆA.—*Theobald* (1901).

♀. Head dark brown, with broad flat scales, black in the middle, and with a few black upright forked ones and flat white ones in front, forming a very distinct white broad border to the eyes, which widens out laterally, forming a pale violet-coloured patch on each side ; two black bristles project forwards from between the eyes and others are placed laterally ; eyes black ; antennæ brown, basal joint deep ferruginous in some lights, brown in others, base of the second joint also ferruginous ; palpi very short, black ; proboscis dark brown, nearly as long as the body, expanded apically, hairy. Thorax black, covered with narrow shiny pale bronzy scales and black bristles ; a distinct line of flat brilliant silvery-white scales in front of the wings, on each side ; also a small silvery-white patch on each prothoracic lobe, and others on the pleuræ ; scutellum almost black in some lights, testaceous at the sides in others ; metanotum dark reddish-brown ; pleuræ brown, spotted with white ; in some lights the thorax looks deep umber-brown under a hand-lens. Abdomen clothed with dusky-brown scales, with dull violet reflections, pale cream-coloured bands along the apical borders, giving the abdomen a distinctly banded appearance, apical borders of the segments with brownish-golden hairs (in some specimens this banding is not at all distinct) ; venter covered with grey scales ; in some specimens there are pale apical patches on the sides, but not in all. Legs covered with purplish-black scales ; coxæ bases and ventral surfaces of the femora pallid, grey scaled: hind legs with a faint knee spot; the whole legs have a bronzy appearance in certain lights. Wings with the veins covered with purplish-black scales, except the base of the fifth longitudinal vein, which is covered with silvery-white scales, forming a characteristic silvery line at the base of the wing; wings iridescent; first sub-marginal cell very small, both shorter and narrower than the second posterior cell, its stem more than twice the length of the cell; second posterior cell broad, its base nearer the base of the wing than that of the first sub-marginal cell; posterior cross-vein nearly twice its own length distant from the mid cross-vein, both very pale; veins with a row of small dark scales; the apical portions of the second to fourth long veins with lateral spindle-shaped ones. Halteres with a pale stem and fuscous knob.

Length, 2 mm.

This is a beautiful little mosquito, found resting just above the water line in casks and water-butts, especially when nearly empty. I found them at Deception Bay, at Burpengary and Enoggera. It does not bite man, but evidently bites birds, for I have taken them gorged with avian blood. It is rather rare, but present throughout the year. It oviposits in a small black raft; the upper ends of the eggs are studded with papillæ; to the naked eye, the raft looks like that of Culex cylindricus, and also like a small piece of that of Culex tigripes, with which mosquitoes this insect is associated; the eggs can be easily distinguished upon examination under a low power of the microscope. The larvæ to the naked eye, resemble Anopheles and feed on the surface on Algæ and Diatoms; examined microscopically, they are seen to have a respiratory siphon and other characteristics; they thrive badly for some unknown reason, only a few reaching the stage of pupation; only a few have been found in conjunction with other larvæ in casks; they do best in water an inch or so deep and with a mud bottom.

ANISOCHELEOMYIA.—Theobald (1905).

Head clothed with flat scales rather loosely applied to the surface, and which form a more or less projecting mass between the eyes in front. Antennæ densely pilose in the male. Proboscis swollen apically. Palpi very short in both sexes. Thorax with narrow-curved scales in the middle, and with broad spindle-shaped ones around the front and sides; scutellum with small flat scales rather loosely applied, very distinctly trilobed. Wings ornamented. Ungues of male not very unequal in length, but differing in breadth, one on each leg broad and leaf-like. Fork-cells short as in Uranotænia. Closely related to Uranotænia, but differing in the non-plumose male antennæ and peculiar ungues, also in the absence of flat thoracic scales and more rugged appearance of the head and scutellum. The genitalia cannot be made out, but the perfect specimens are evidently all three males.

ANISOCHELEOMYIA NIVIPES.—*Theobald* (1905).

♂. Head brown, clothed with rather loosely applied creamy white flat scales ; the antennæ deep brown, basal segment deep reddish-brown ; clypeus brown ; palpi clothed with deep brown scales and with a few long black chætæ ; proboscis deep brown, with bronzy reflections, swollen apically, hairy. Thorax bright brown ; the middle of the mesothorax with narrow-curved bronzy-brown scales and three rows of black chætæ, the dark scaled area surrounded by thicker creamy-white curved scales, forming a well contrasted whitish area, which is indented into the dark area on each side in front before the base of the wings ; scutellum with small flat dark brown scales and black border-bristles, four to the mid lobe ; metanotum bright chestnut-brown ; pleuræ clothed with dense creamy-white scales continuous with the pale areas around the mesothorax. Abdomen deep brown, with deep brown scales and creamy-white scaled apical borders ; the apical segment all pale scaled ; border-bristles pale. Legs deep brown ; coxæ and trochanters pale, last two and apex of the antepenultimate hind tarsals white ; the fore and mid tarsals pale beneath ; ungues unequal in size, but the posterior of nearly equal length, the larger fore and mid very broad and thick, the smaller abruptly curved basally. Wings ornamented ; costa black and spiny ; first long vein black-scaled with a large white area over the cross-veins, and a white apex ; a dark area on the stem of the first sub-marginal cell and a small dark area beneath it on the third, most of the stem of the second fork-cell dark, also a dark area in the middle of the upper branch of the fifth and at the apex of the lower branch ; the whole forming a dusky band across the otherwise pale-scaled wing ; first sub-marginal cell about two-thirds the size of the second posterior cell, its stem twice as long as the cell ; stem of the second posterior slightly longer than the cell ; posterior cross-vein longer than the mid cross-vein, and nearly twice its own length distant from it, situated close to the base of the upper branch of the fifth vein Lateral scales on the fork-cells and the third long vein large and lanceolate, a few very similar ones on the apex of the upper branch of the fifth ; median vein scales small and dark on the fork-cells, third vein and middle of the upper branch of the fifth and the apex of the lower branch ; those on the stem of the first fork-cell dark and some of almost etorleptiomyian-form (*i.e.*, heart-shaped), but more elongate. Halteres with pale testaceous stem and fuscous knob.

Length, 2.5 mm.

Habitat : South Queensland (Bancroft).

Observations: Described from two perfect specimens; Dr. Bancroft states that they live in company with Uranotænia pygmæa; although very distinct they cannot be told from that species until boxed. An extremely rare mosquito found just before leaving Deception Bay in 1904, in a cask half-ful of water resting just above the water line.

THE MALE GENITALIA.

Mr. Theobald in the Vol. IV. Monograph of Culicidæ, remarks as follows:—

The prominence now given to the male genitalia makes it necessary to add a figure showing the different parts, that are important to notice. Roughly, the external genitals consist of two "claspers," each of which has a large basal lobe (bes,) and a variously shaped terminal clasp segment (tes), which folds over like the blade of a knife. At the apex of this is found a more or less developed spine (this may be absent in some species, double in others), which is thought by Professor Felt to be the rudiment of a ventral second segment analogous to the claspette (c) of the basal segment. The term claspette designates certain peculiar organs occurring on the ventral surface of the basal lobe. it may be represented by one or more spined tubercles

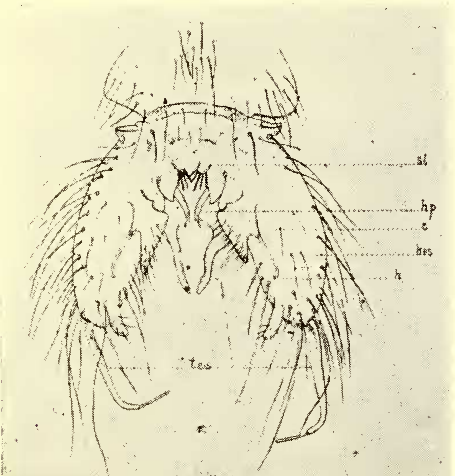


Fig 2.

Diagram of ♂ genitalia.

[illegible] claspers; h, harpes; hp, harpagones; c, claspette; bes, basal lobe; st, setiferous lobes (after Felt).

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or by a conspicuous basal spined lobe and a longer acute one near the apex of the basal segment. The terminal segment varies very much in different forms, some being most striking appendages (Dendromyia, Tæniorhynchus, etc.) Between the clasps lie the harpes (h), normally forming the next largest structures, they arise from or near the base of the claspers, they are placed ventrally and sub-median. They are very diverse in form and in some groups are of two segments each. They are either very small or absent in Ædeomyinæ. The harpagones (hp) are a pair of small clasping organs lying above the harpes and within the base of the clasps. They are frequently strongly curved and terminated by a stout recurved hook. The unci consist of a pair of processes on the ventral margin and may be easily seen in Culicinæ, but seem to be absent in Anophelinæ. In certain groups (as Chrysoconops) they are stout and provided with a peculiar series of chitinous teeth. The setaceous lobes (sl) are part of the rudimentary eighth segment. They are in the form of chitinous lobes with a series of stout, chitinous spines.

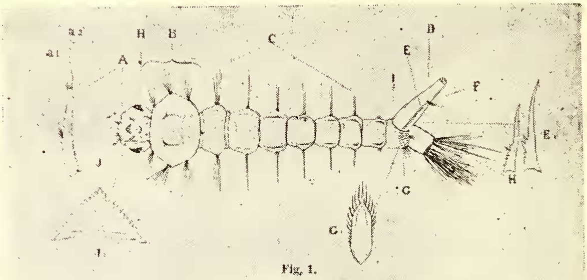

Fig. 1.

Diagram of larva.

A, Antenna; a_1, lateral tuft; a_2, apical spines; B, thorax; C, abdominal segments; D, siphon; E, pecten of siphon; E_1, pecten scales; H, anal gills; G, comb of 8th segment; G_1, comb scale; H, eyes; I, 8th segment; J and J_1, labial plate; F, siphon tuft.

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LARVAL CHARACTERS.

The characters used for identifying the larvæ of Anophelinæ made most use of are (i) the frontal hairs of the head; (ii) the structure of the antennæ; and (iii) the structure of the palmate hairs. In the Culcinæ the chief characters of diagnostic value are (i) the form of the clypeus; (ii) the structure of the antennæ; (iii) the form of the siphon; and (iv) the number and structure of the spines forming the pecten on the siphon and on the so-called comb at its base.

Rain seems to be an incentive to many kinds of mosquitoes to oviposit ; high spring tides for others, whilst putrefaction will induce others, *e.g.*, Culex fatigans, which species will oviposit at any time on liquid manure, putrid soap suds, etc.

Hitherto, the breeding places of some of the most important of our mosquitoes have not been located, and male specimens of quite a number are unknown, *e.g.*, Pyretophorus atratipes, Myzorhynchus bancroftii, Mansonia uniformis, Grabhamia flavifrons, etc.

Although thirty-two species have been described, and possibly there are another twenty species yet to be described, only four are present in such numbers as to constitute a nuisance ; these four comprise the two introduced species, viz., Culex fatigans and Stegomyia fasciata, and the two bush-mosquitoes, Culex vigilax and Culex annulirostris. By the exercise of a little ingenuity, the numbers of these four species might easily be reduced very considerably.

The " House " and " Tiger " mosquitoes breed about habitations ; the larvæ are found in tanks, which are not protected in a proper manner ; the old idea of fixing a metal funnel to the manhole inlet is a bad one, for when made of galvanised-iron, holes are puched into it so large as to allow of the entrance of mosquitoes, and when made of perforated zinc, rotten leaves and the dung of pigeons and frogs collecting at the apex, cause corrosion or oxidation of the zinc, and in a few months a hole results, large enough for even frogs to enter. To obviate this, a flat sheet of perforated zinc should be placed over the man-hole, and kept in position by being soldered on in a few places. The spout from the roof, if entering at an angle, should be made to impinge at the edge ; there will be no loss of water, as is generally supposed ; the writer has used this system for twenty years and found it most satisfactory ; leaves and bird dung, etc., are prevented from entering the tank, and soon get dry, and mostly blown off by the wind, or can be swept off.

There should be an elbow fitted to the over-flow, as then no direct light could enter the tank ; the holes punched into the tank to constitute the overflow are large, and mosquitoes can enter easily, but the elbow effectively prevents them.

Troughs of water for animals should be emptied out at least once a fortnight, and any stagnant water about should be drained ; if that cannot be done, a little kerosene applied once a fortnight would kill the larvæ before they hatched into mosquitoes ; the " House Mosquito " often breeds in cesspits ; a cupful of kerosene once a fortnight would effectively prevent it doing so.

The two bush-mosquitoes breed for the most part in pools of sea water, that have been left after spring tides ; drains should be made to allow the water to get away ; if that cannot be done, kerosene applied a few days before the spring tides, would destroy all the larvæ; if mosquitoes were found breeding in ponds, a few small fish, *e.g.*, Eleotris, Gobies or even Gold Carp introduced into them would devour the larvæ.

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